

LEATH & ROSS'S HOMŒOPATHIC PHARMACIES,

9 VERE STREET, W.,
And 5 ST. PAUL'S CHURCHYARD, E.C.,
LONDON.

Those desirous of
BECOMING AGENTS
are requested

ESTABLISHED 1835.

To apply at

9 VERE STREET,
Wholesale Department.

Our Agents'
GLASS-TOP SHOW CASE,
As it appears open.



TRADE PRICE £4 4s.
CONTENTS REALISE £7 1s. 6d.

Agents for L. & R.'s Medicines are now established in every town of any importance in England, some of the principal towns in Ireland and Scotland, several of the British Colonies, and India and America. Upwards of 1,800 persons have accepted the Agency, and many have found this branch a profitable auxiliary to their other business.

THE NEW FAMILY CHEST
Contains 28 Bottles of the most useful Homœopathic Medicines, a Guide, giving the treatment of all common complaints, the uses of the Medicines, proper doses, &c. In the lid are the two externals most in use, viz., Arnica and Calendula. It can be fitted to hold either Pilules or Tinctures.
Price 25/; trade price, 16/8.

LEATH & ROSS'S WHOLESALE PRICE LIST OF MEDICINES, ETC., PUT UP READY FOR SALE.

GLOBULES—Medicated any strength up to the 30th potency.

Sixpenny Tubes, 3/- per dozen.

Ninepenny " 4/6 "

Shilling " 6/- "

TINCTURES—Any strength up to the 30th potency.

Sixpenny Bottles, 3/- per dozen.

Ninepenny " 4/6 "

Shilling " 6/- "

PILULES—Medicated to any strength up to the 30th potency

Sixpenny Bottles, 3/- per dozen.

Ninepenny " 4/6 "

Shilling " 6/- "

TRITURATIONS—

Sixpenny Bottles, 4/- per dozen.

Ninepenny " 4/6 "

Shilling " 6/- "

EXPORT ORDERS ARE DESPATCHED WITH THE GREATEST PROMPTITUDE.
Special quotations for large quantities.

LEATH & ROSS'S PROPRIETARY ARTICLES.

ERRBERINE, 1/1½, 2/9, 4/6 ... 9/6, 22/, 36/.

HILBLAIN LINIMENT, 1/1½, 2/9 ... 9/6, 22/.

HOSPHO-MUR. QUININE, or PICK-ME-UP

TINCTURE, 1/1½, 2/9 ... 9/6, 22/.

UROSINE, 1/, 1/6, 2/6 ... 8/, 12/, 20/.

ANTISEPTIC TOOTH TINCTURE, 1/, 1/6, 2/6 8/, 12/, 20/.

NEURALINE, 1/1½, 2/9, 4/6 ... 9/6, 22/, 36/.

GLYKALINE, 1/1½, 2/9, 4/6 ... 9/6, 22/, 36/.

ODONTALGIC ESSENCE, 1/1½, 2/9, 4/6 ... 9/6, 22/, 36/.

OZONIZED OIL, 1/, 1/6, 2/6 ... 8/, 12/, 20/.

HAIR RESTORER, 1/6, 2/6, 4/6 ... 12/, 20/, 36/.

Agents' Counter Cases, £2/2/0, £3/3/0, £4/4/0, £6/6/0, and £10/10/0.

LEATH & ROSS, LONDON.

The price of **VASELINE** is now so low, and its value so universally recognised, that it is coming into general use in **Medicine, Pharmacy, and the Arts.**

In 1-lb. Tins, 1s. 3d.; 5-lb. Tins, 1s. per lb.

As a natural consequence of its popularity, imitations are being manufactured, and in some cases sold, by unscrupulous parties as Vaseline—and Vaseline is also adulterated with Paraffin Wax and other matter. To prevent these frauds, we beg to inform Purchasers that our Name and Registered Trade Mark "**VASELINE**" is stamped on every Tin, and we shall be much obliged for any evidence which will enable us to prosecute anyone resorting to these practices.

Imitations of Vaseline can be readily distinguished by their grainy or crystalline structure and acrid or paraffin taste and odour.



As an emollient, Vaseline is superior to any other substance yet discovered. Its marvellous healing and restoring qualities excel everything else, and it is rapidly taking its place on the toilet table to the exclusion of the various complexion powders, pomades, cosmetics, and other compounds. It will keep the skin clearer, softer, and smoother than any cosmetic ever invented, and will preserve the youthful beauty and freshness of the healthy complexion.

Endorsed by the entire Medical Press of England, France, Germany, America, &c. In general use in Hospitals, and recommended by the most distinguished Physicians, Surgeons, and Chemists throughout the world.

Pamphlets containing these editorials and recommendations post free.

We beg to call attention to the following Net Price List of our Vaseline Preparations:—

FOR MEDICINAL USE.

VASELINE (PURE). Bottles, in Fancy Card Cases, 2 sizes, 8s. and 16s. per dozen. In Boxes (wood) of 1 dozen and of $\frac{1}{2}$ dozen each.

VASELINE CONFECTIONS. For internal use. Pulmonary and other complaints. In Fancy Paper Box, 8s. per dozen.

FOR TOILET USE.

POMADE VASELINE will make the Hair grow when nothing else will. It keeps the Scalp free from Scurf and Dandruff. Contains no animal matter, and can never become rancid. In 3 sizes. Bottles, in Cardboard Boxes, 8s., 16s., and white in colour, superior, Perfumed, glass stoppers, 33s.

VASELINE HAIR TONIC. A liquid preparation of Petroleum for Ladies' use. Bottles, enclosed in Cardboard Cases, 36s. per dozen.

VASELINE COLD CREAM, for the Complexion and use after shaving, chafing of infants, &c. Glass Pots, 8s. and 16s. per dozen.

VASELINE CAMPHOR ICE, for the Lips, Pimples, Blotches. 8s. per dozen.

VASELINE TOILET SOAP, Emollient, Antiseptic, Healing. 2 sizes. 4s. per dozen net, and 9s., less 15 per cent. discount.

VASELINE TAR SOAP, Emollient, Antiseptic, Healing. 2 sizes. 4s. per dozen net, and 9s., less 15 per cent. discount.

VETERINARY VASELINE, for Diseases of Animals, also for smearing guns, arms, instruments, &c., to prevent rust. 1-lb. tin, 1s.; 5-lb. tin, 10d. per lb.

The following standard Ointments compounded with Vaseline as a base will be found superior to any others. They can be kept without deterioration until used up:—

Unguentum Hydrargyri ($\frac{1}{2}$ MERCURY—MERCURIAL OINTMENT).

Unguentum Zinci Oxidi.

Unguentum Hydrargyri Nitratis (CITRINE OINTMENT).

Ceratum Resinæ.

Ceratum Plumbi Subacetatis (GOULARD'S CERATE).

Pomat Camphoratum, Fr.

Cerat Simplex (WHITE).

In
1 lb.
Jars,
3s.
per
Jar.

Price List, with full particulars of Medicinal, Pharmaceutical, and Toilet Preparations of Vaseline, free by post.

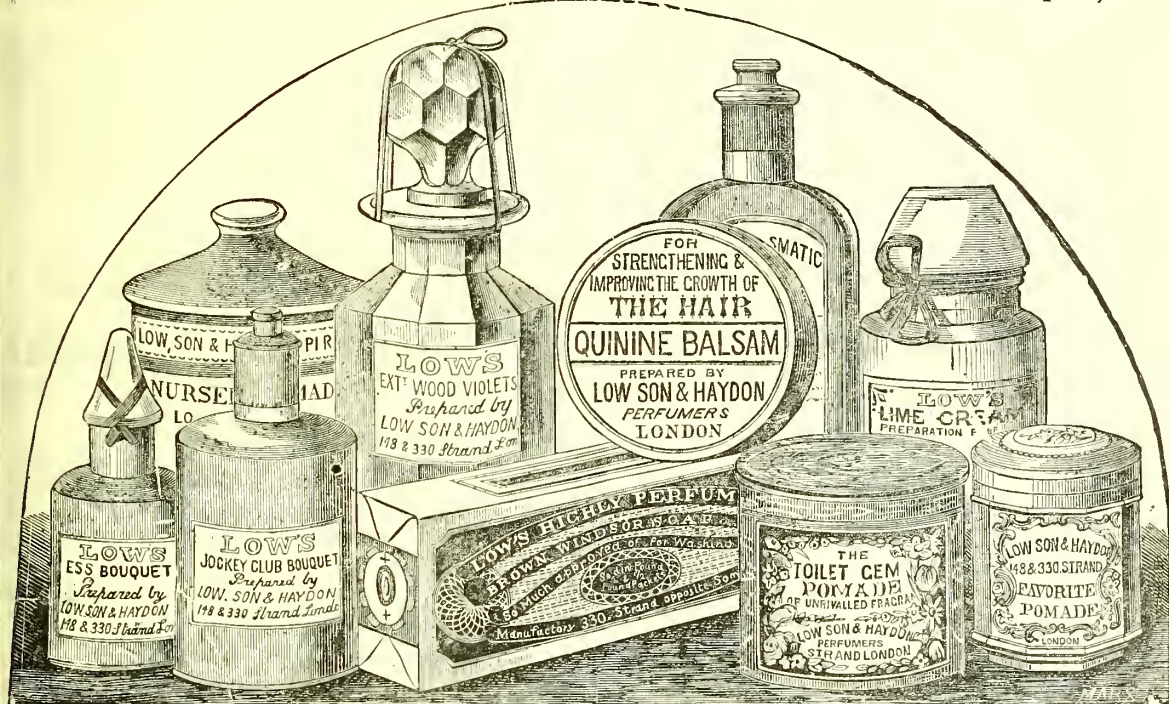
MANUFACTURED ONLY BY THE

CHESEBROUGH MANUFACTURING CO.,

41 HOLBORN VIADUCT, LONDON, E.C.

REGISTERED.

PRIZE MEDALS AWARDED,
INTERNATIONAL EXHIBITION, 1862, & CENTENNIAL EXHIBITION, Philadelphia, 1876.



R. LOW, SON & HAYDON,

MANUFACTURERS OF CHOICE

TOILET SOAPS & EXTRACTS,

Call the special attention of the Trade to the quality of their Manufactures, and also state that they are prepared to offer the best possible value to Cash Purchasers.

Orders for Toilet Soaps of 1 Cwt. and over stamped with Buyer's Name free of cost.

CREASOTE SOAP, REGISTERED,

The New Disinfectant, in wrapped squares, $3/6$ per dozen or $36/$ per gross, subject to 10% at a month.

FLOWER EXTRACTS,

OF TRIPLE STRENGTH, viz., Ess Jasmin, Cassie, Fleur d'Oranges, Rose, Rezéda, Jonquille, Tuberosé, Ylang-Ylang, &c., $9/6$ per lb., subject to 10% at one month.

French, Rose and Orange Flower Waters, Virgin Otto de Rose, Oils Neroly, Petit Grain, Sandal Wood, Cloves, Cassia, Caraway, Geranium, Ess Bergamot, and Lemon,

And all Articles used for the manufacture of Perfumery, of guaranteed purity, at Special Quotations.

WAREHOUSE: 330 STRAND, LONDON.

BY HER
MAJESTY'S



ROYAL
LETTERS PATENT.

ARNOLD & SONS' "SIMPLEX" ENEMA.

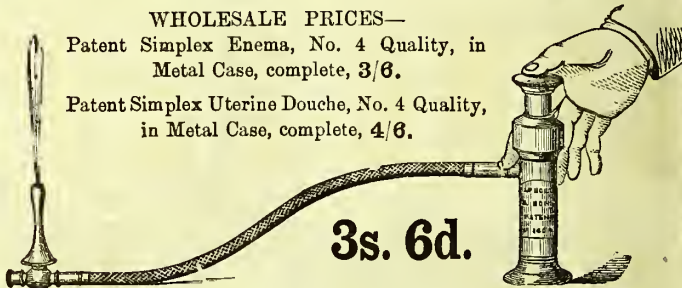
NOTICE.—ARNOLD & SONS, at the suggestion of several leading members of the Profession, have introduced a cheap form of their Patent "Simplex" Enema, which will be found to supersede all other Enemas. It is acknowledged to be the most simple, durable, and effective instrument yet introduced.

Vide *The Lancet*, August 17, 1872; *British Medical Journal*, June 22, 1872; *Medical Times and Gazette*, June 22, 1872; *Medical Press and Circular*, June 26, 1872.

WHOLESALE PRICES—

Patent Simplex Enema, No. 4 Quality, in Metal Case, complete, 3/6.

Patent Simplex Uterine Douche, No. 4 Quality, in Metal Case, complete, 4/6.



3s. 6d.

THE VAPORIFER.

5s. & 7s. 6d.



ARNOLD & SONS' PATENT VAPORIFER, BRONCHITIS KETTLE, INHALER, AND VAPOUR BATH COMBINED,

As suggested by W. L. SHEPARD, M.R.C.S., etc.

Vide *The Lancet*, Jan. 11, 1879; *British Medical Journal*, Feb. 8, 1879; *Medical Times and Gazette*, April 12, 1879.

Extract of Letter received from J. F. FINCHETTE, Esq., Portland House, Brunswick Square, W., dated Feb. 18, 1879. "The 'Vaporifer,' all complete, came to hand safely on Saturday last, with thanks, and I consider it a marvel of cheapness and utility, and I wish DR. SHEPARD, all success with his invention, which, I feel assured, only needs to be known to be appreciated. I have tried it for each of the purposes for which it is intended, and found it answer completely."

Trade Price, 42s. per doz. Retail Price, 5s. With Lamp, Saucepan, and Stand complete, 63s. per doz. Retail Price, 7s. 6d.

SOLE MANUFACTURERS
AND PATENTEES—

ARNOLD & SONS, Instrument Makers,
By Appointment to Her Majesty's Government, St. Bartholomew's Hospital, and the Principal Provincial and Colonial Hospitals, &c.

35 & 36 WEST SMITHFIELD, LONDON, E.C.

ALFRED BASTIN, WHOLESALE AND EXPORT DRUGGIST, 29 FENNEL STREET (CLOSE TO THE CATHEDRAL), MANCHESTER.

Shipping Orders carefully and economically executed. Price List Free on Application

GOLD MEDAL, PARIS, 1878.

JOSEPH GILLOTT'S
STEEL PENS.
Sold by all dealers throughout the World.



P. A. STEVENS, CHEMIST AND
DENTIST, 70 HYDE ROAD, HOXTON,
LONDON, N. Sole Proprietor and Maker of
the SILVERY WHITE GUTTA PERCHA
ENAMEL for Stopping Decayed Teeth.

REGISTERED—No. 3745. P. A. S. is prepared to supply the above to Wholesale Houses and Chemists, in any quantity, with their name stamped upon each stick, cut any length.

To be obtained of all Wholesale Houses. Price List and Samples sent post free. Special Terms to Shippers.
SPECIAL NOTICE.—The words SILVERY WHITE GUTTA PERCHA ENAMEL are registered as a Trade Mark, and will be protected.

NEW DISCOVERY.
INK FOR ENGRAVING ON GLASS.
Harmless, used with Metallic Pen.
INDISPENSABLE for
Marking Bottles, Graduated
Tubes, &c, &c.

WHOLESALE ONLY—
J. SABATIER & Co.,
9 BREAD STREET HILL,
LONDON.



1880.

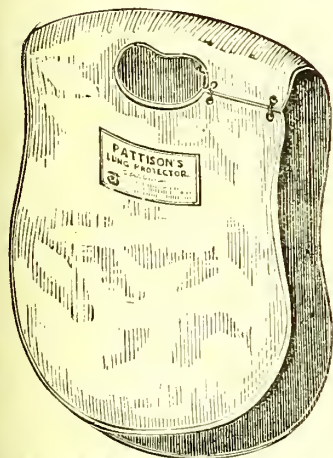
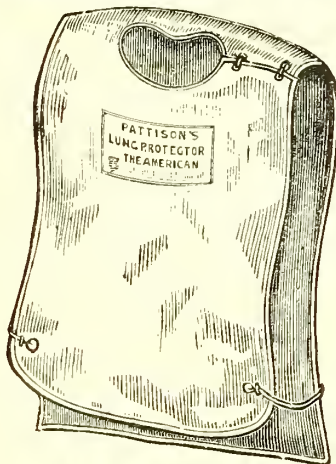
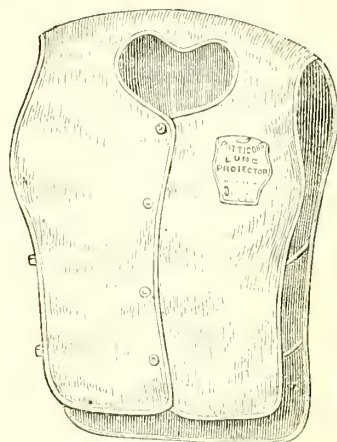
FOURTEENTH SEASON.

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PROTECTOR
TRADE MARK

THE

LUNG PROTECTOR

(REGISTERED).

THE LUNG PROTECTOR.
ORIGINAL PATTERN.LUNG PROTECTOR.
THE AMERICAN.LUNG PROTECTOR.
THE CANADIAN.

GEORGE PATTISON,

INVENTOR AND SOLE MANUFACTURER,
LONDON.

HENRY YOUNG,

(ESTABLISHED A.D. 1846).

Inventor of the ORIGINAL ARNICATED White Felt.

CORN AND BUNION PLASTERS.

PRICES—

Arnicated White Felt Corn Plasters.

Thin, 12 in box (round 6d. boxes)	...	2/4 per doz. boxes.
Thick, 12 in box (original 1s. fancy boxes)	...	3/4 "
Thin, 1 gross in box	...	1/10 per gross.
Thick, 1 gross in glass top box	...	3,0 "

Arnicated White Felt Bunion Plasters.

Small Thin, 6 in box (round 6d. boxes)	...	2/4 per doz. boxes.
Thick, 6 in box (original 1s. fancy boxes)	...	3/8 "
Large Thin, 1/2-gross in box	...	4/6 per gross.
Thick, 1/2-gross in glass top box	...	6/0 "

SUBJECT TO THE DISCOUNTS ALLOWED BY WHOLESALE HOUSES.

N.B.—Please notice these are much LOWER priced than formerly, and see that YOUNG'S Goods are supplied, as there are many worthless imitations.

Manufactory, 72 Clerkenwell Road, London, E.C.

GEORGE PATTISON, Proprietor.

(LATE OF CARTHUSIAN STREET.)

ALLEN & HANBURY'S

SILVER MEDAL, PARIS, 1878.



JUJUBES

PREPARED BY

PATENT PROCESS.



		1 lb. size.	1- size.	6d. size.		1 lb. size.	1- size.	6d. size.
ANISEED LIQUORICE ...		Per doz.	Per doz.	Per doz.		Per doz.	Per doz.	Per doz.
BLACK CURRANT		30/-	8/-	4/-		32/-	8/6	4/4
DELECTABLE		"	"	"		"	"	"
EXTRACT OF MALT		"	"	"		"	"	"
GLYCERINE	JUJUBES,	"	"	"	PASTILLES,	"	"	"
lichen		"	"	"		"	"	"
LIQUORICE	2/-	"	"	"	2/2	"	"	"
MAGNUM BONUM		"	"	"		"	"	"
PECTORALE	PER LB.,	"	"	"	PER LB.,	"	"	"
PINE (Pâte de Jujube)	or in tin	"	"	"	or in tin	"	"	"
RASPBERRY		"	"	"		"	"	"
ROSE	boxes.	"	"	"	boxes.	"	"	"
TAMARIND		"	"	"		"	"	"
VIOLET		"	"	"		"	"	"
VOICE		"	"	"		"	"	"

All the above tins are neatly wrapped ready for sale. The One Pound Tins are returnable at 6/- per doz.

GUIMAUVE, cut into Cubes	}	2/6	36/-	8/-	not
GUIMAUVE PASTILLES		PER LB.			supplied
GUIMAUVE SHEET.....	}	2/-			
		PER LB.			

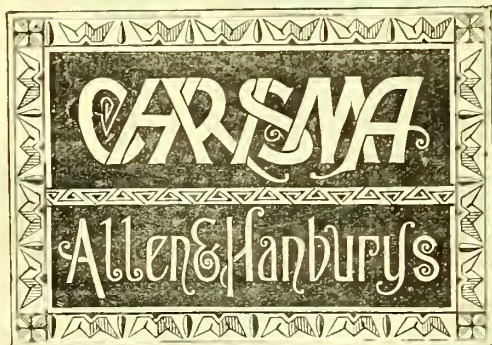
PECTORAL FRUIT PASTILLES.

(Registered.)

A bronchial and pulmonic Jujube of delicious flavour.

Sold only in round boxes, to retail at 1/-, 1/6 and 3/- each; 9/-, 16/-, and 27/- per doz.

GUIMAUVE PASTILLES (Crystallized).....	2/6 per lb.	} The two can be had mixed. Various assorted or mixed.
(Rose)	2/6 per lb.	
CRYSTALLIZED "FRUIT PASTILLES	2/- per lb.	
CRYSTALLIZED VOICE JUJUBES	2/- per lb.	



CHRISMA (*Xplovua*, unguentum)

Is a pure and perfectly neutral solid hydrocarbon derived from Crude Petroleum, devoid of smell and taste. It is of about the consistence of lard, and **cannot become rancid.**

ALL PACKAGES FREE.

In 1 lb. round Tins, at	11d. per lb
In 7 lb., 14 lb., and 28 lb. square screw-capped Canisters, at	10d. "
In 56 lb. and 112 lb. square screw-capped Canisters, at	9d. "

SAMPLES POST FREE.

N.B.—ALLEN & HANBURY'S invite special attention to the lard-like consistence of CHRISMA, and its freedom from taste and smell as compared with any other article of this class in the market, also to the fact that it is actually cheaper than the best lard.

THE LANCET, May 29th, 1880.

"The remarkable series of hydrocarbons, now known as the paraffins, which extends from hydrogen and marsh gas up to the hardest varieties of solid paraffin, are amongst the most stable of carbon compounds. The substance now before us seems to consist of the softer solids of the series. It has about the consistency of lard, is absolutely free from taste and smell, and is beautifully pure. As it cannot possibly go rancid, it is not affected by any ordinary admixture; it is beneficial in its action on the skin, and is perfectly adapted for pharmaceutical and general family use. There is now no excuse for the use of lard in pharmacy."

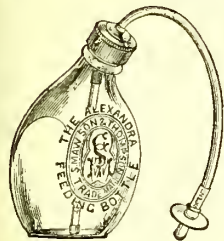
ALLEN & HANBURY'S,

PLOUGH COURT, 37 LOMBARD STREET, LONDON, E.C.

General List of Drugs, Chemicals, &c., posted free on application.

S. MAW, SON & THOMPSON'S

FEEDING BOTTLES.



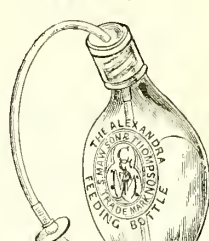
Alexandra Feeding Bottle,
Screw Metal Cap,
11/ per doz.



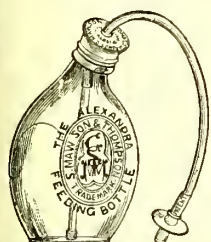
Alexandra Feeding Bottle,
Gilt Porcelain Cap,
20/ per doz.



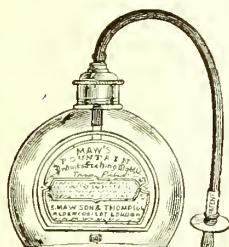
Alexandra Feeding Bottle,
Earthenware Cap,
10/ per doz.



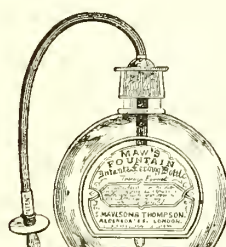
Alexandra Feeding Bottle,
Screw Glass Stoppers,
10/3 per doz.



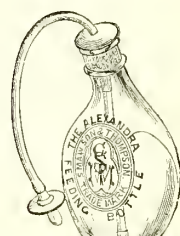
Alexandra Feeding Bottle,
Earthenware Cap,
7/6 per doz.



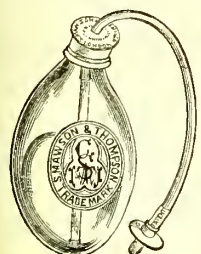
Fountain Feeding Bottle,
Electro-Plated Mount,
30/ per doz.



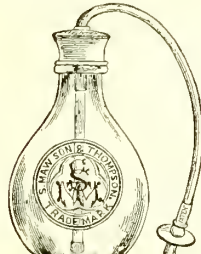
Fountain Feeding Bottle,
Pure Tin Mount,
20/ per doz.



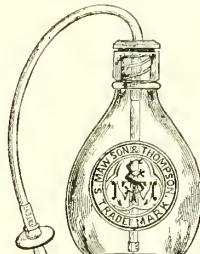
Alexandra Feeding Bottle,
Wood-Top Cork,
3/9 per doz.



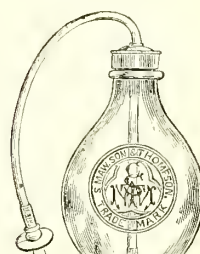
Oval Feeding Bottle,
Earthenware Cap,
7/6 per doz.



Export Feeding Bottle,
Earthenware Cap,
7/3 per doz.



Export Feeding Bottle,
Screw Glass Stopper,
7/6 per doz.



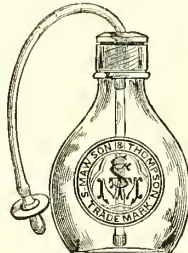
Export Feeding Bottle,
Screw Metal Cap,
8/6 per doz.



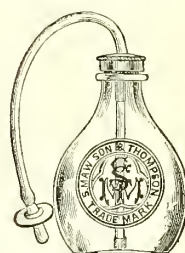
Export Feeding Bottle,
Metal Cap,
4/3 per doz.



Export Feeding Bottle,
Wood-Top Cork,
3/6 per doz.



Export Feeding Bottle,
Screw Glass Stopper,
4/3 per doz.



Export Feeding Bottle,
Screw Metal Cap,
4/6 per doz.

FOR FURTHER PARTICULARS SEE QUARTERLY PRICE CURRENT, PAGES 53, 54.

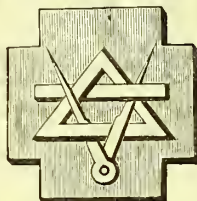
S. MAW, SON & THOMPSON,

7 to 12 Aldersgate Street, London.

"VICTORIA" OFNER MINERAL BITTER-WATER.

THE BEST NATURAL APERIENT.

TRADE MARK.



As a safe, ordinary, and gentle aperient,
In inflammation and congestion,
In rheumatic and gouty disorders,
Against undue tendency to fat,
Against hæmorrhoids,
In bilious attacks and disorders of the liver,

During pregnancy and in many female diseases
For habitual constipation,
In Organic Diseases resulting from fatty degeneration,
To remove the consequences resulting from excess in diet, &c.

The Proprietors of this Natural Spring of Laxative Water are desirous of bringing the leading features before the Medical Profession. The advantage specially claimed are, that it contains a larger amount of valuable active aperient solids than any other bitter water previously in vogue with the public or prescribed by the faculty, and notwithstanding its rapid action as an aperient, it produces no uneasiness in its effects. It will be seen from the analytical data (below) of eminent Professional Chemists of England and the Continent, that this water contains nearly double the amount of Magnesium found in any other Bitter Water, hence it is entitled to be distinguished as a "SPECIFIC MAGNESIUM BITTER WATER."

	Analysis of Prof. H. E. ROSCOE, F.R.S., Owens College, Manchester.	Special Analysis of Prof. M. BALLO, Chemist of the City of Budapest.	Analysis of Dr. G. L. ULEX, Official Chemist of the City of Hamburg.
MAGNESIUM SULPHATE	32.8107 ..	32.5800 ..	33.60 ..
SODIUM SULPHATE	17.1693 ..	20.9540 ..	19.55 ..
POTASSIUM SULPHATE	0.4407 ..	0.3105 ..	1.28 ..
CALCIUM SULPHATE	2.3304 ..	1.6020 ..	1.33 ..
SODIUM CHLORIDE	1.7708 ..	2.2431 ..	2.28 ..
SODIUM CARBONATE	1.1884 ..	0.4980 ..	2.10 ..
ALUMINA	0.0108 ..	0.0229 ..	0.3 ..
SILICA	0.0587 ..	0.0444 ..	0.6 ..
PHOSPHORIC ACID	Trace ..	Trace ..	Trace ..
SUMMARY OF TOTAL SOLUBLE CONSTITUENTS	55.1738 ..	58.0549 ..	60.23 ..
Do. Do. FOUND DIRECTLY	55.7250 ..	58.156
SPECIFIC GRAVITY AT 17°C.	1.0534 AT 17°C.	1.05362 AT 14°C.	1.055

*Soluble Constituents and Sulphate of Magnesia in
"Victoria Bitter Water," as compared with
other Mineral Waters.*

	Soluble Constituents.	Sulphate of Magnesia
VICTORIA Bitter Water	55.77	32.87
Rákóczy	53.53	23.06
Franz Josef	52.29	24.78
Hunyady László	51.07	24.20
Hunyady János	41.73	18.44
Königsbitterquelle ..	37.55	16.68
Elisabeth	26.29	8.04
Püllnaer Bitterwasser ..	32.72	12.12
Friedrichshaller	25.29	5.15
Saidschützer	23.21	10.96

Retail Prices:—Litres, 1/6 per bottle; Half-Litres, 1/- per bottle.

Cases are free and contain either 25 Litre Bottles or 50 Half-litre Bottles. May be obtained of any Chemist or Patent Medicine Vendor in the United Kingdom.

THE "VICTORIA" NATURAL BITTERWASSER OF BUDAPEST, HUNGARY

Wholesale Depot for England and Colonies:—92 & 93 Great Russell Street (corner of Charlotte Street), London, W.C.

Highest Prize Awarded by the Paris Exposition, 1878

MORTIMER'S BROMO PAPER.

A PERFECTLY PURE ARTICLE FOR THE WATER CLOSET.

The Best Article of the kind Manufactured

Boxes containing	500 Sheets	per dozen	12/6
"	1,000	"	18/-
Cases	50 Packets	(500 Sheets)	50/-
"	"	(1,000) 72/-

10% and 5% CASH MONTHLY.

SOLE WHOLESALE AGENTS for the UNITED KINGDOM and COLONIES,

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From Professor C. B. C. Tichborne.

"40 Mary Street, Dublin, 24th November, 1875.

"Gentlemen.—I have examined the case of specimens, and consider them invaluable for educational purposes. They are evidently chosen with great care, and are in every case typical specimens."

"Believe me, Gentlemen, yours very truly.

"CHAS. B. C. TICHBORNE."

London, Jan. 7th, 1880.—"I am much pleased with the collection, and shall certainly recommend it to all the men I know in the profession."

Edinburgh, Sept. 21th, 1879.—"I am well pleased with the specimens, and it will give me pleasure to recommend them to my friends."

Glasgow, Dec., 1876.—"Accept my thanks for making the reading of Materia Medica easy."

London, June 24th, 1879.—"I am quite sure that to wish for anything more than your excellent collection for the price would be to wish for too much. It is sure to be appreciated in India, where I wish it were better known."

Burley, March 9th, 1877.—"An inexhaustible source of instruction."

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From Dr. Geo. F. Duffey, M.D., Fellow and Censor (Examiner in Materia Medica) King and Queen's College of Physicians, Ireland; Lecturer on Materia Medica in the Carmichael School of Medicine, Dublin; Physician to the Mercer's Hospital, &c., &c.

"Dublin, 8th April, 1878.

"Messrs. Southall Bros. and Barclay.

"Gentlemen.—I beg to acknowledge the receipt of the specimens of Materia Medica which you have forwarded to my order for the King and Queen's College of Physicians in Ireland, and have pleasure in enclosing a cheque for the amount."

"The President and all the Fellows of the College, including the King's Professor of Materia Medica, Dr. Aquila Smith, who have seen the specimens, have expressed themselves as much pleased with the very creditable collection you have sent. Personally I have to thank you for the care and trouble you have taken in so satisfactorily meeting all my requirements."

"I am, Gentlemen, yours faithfully,

"GEORGE F. DUFFEY."

The following note is from Dr. P. W. Latham, Professor of Medicine, Cambridge University:—

"Cambridge, February 25th, 1869.
"Gentlemen.—Enclosed I send you a cheque for the amount due from me: I am extremely well pleased with the collection of vegetable specimens with which you have provided me, and am very much obliged to you for the trouble you have taken. In my lectures on Materia Medica I have shown my class your 'Students' Collection,' and strongly recommend each member to purchase one. You have conferred a great boon on Medical Students, by placing within their reach such a collection at so reasonable a rate.
Yours obediently,
P. W. LATHAM."

Dr. Muter, Director of the South London School of Pharmacy (New Kennington Institute), writes:—

"29 Kennington Road, S.E., London, 14th September, 1871.
"Dear Sirs.—I am last night in receipt of the large set of specimens sent by you as an addition to our Museum of Materia Medica. They are exceedingly good and characteristic, and give me the greatest satisfaction. I will always in future desire my students to possess themselves of your 'Students' Set' for home study.
Yours faithfully,
JOHN MUTER, Ph.D., M.A., F.C.S., Director."

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WINTER SESSION COMMENCES 27th OCTOBER.

Prospectus and Full Particulars on Application. Classes Open to Amateurs.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL, Albert Embankment, S.E.

The WINTER SESSION, 1880-81, will commence on OCTOBER 1st, when an Introductory Address will be delivered by W. M. Ord, M.D., Dean of the School, at 3 p.m. Two Entrance Science Scholarships of £100 and £60, open to all First Year's Students, will be offered for competition in the first week of October; the subjects of the Examination will be Chemistry and Physics, with either Botany or Zoology at the option of candidates. Special Classes are held throughout the year for the Matriculation, Preliminary Scientific, and First M.B. Examinations of the University of London. All Hospital Appointments are open to Students without charge. Scholarships and Prizes to the value of over £300 are awarded at the Sessional Examinations, as also several valuable Silver and Gold Medals. The fees may be paid in one sum, or by instalments. Special entries may be made to Lectures or to Hospital Practice, and qualified practitioners are admitted to perpetual attendance for a small fee. Special arrangements are made for Students joining in their second or subsequent years, and also for Dental Students. Several medical practitioners in the neighbourhood receive Students for residence and supervision, and a register of inspected and approved lodgings is kept in the Secretary's office. Prospectus and all particulars can be obtained from the Secretary, Dr. Gillespie.

W. M. ORD, M.D., Dean.

THE LONDON HOSPITAL AND MEDICAL COLLEGE.

HOSPITAL STAFF.

CONSULTING PHYSICIANS—Dr. Herbert Davies, Dr. Ramskill.
CONSULTING SURGEONS—Mr. Luke, F.R.S., Mr. Curling, F.R.S.
PHYSICIANS—Dr. Andrew Clark, Dr. Langdon Down, Dr. Huguilings-Jackson, F.R.S., Dr. Sutton, Dr. Fenwick.
ASSISTANT PHYSICIANS—Dr. Stephen Mackenzie, Dr. Sansom, Dr. Charleswood Turner, Dr. Gilbert Smith, Dr. Warner, Dr. Ralfc.
SURGEONS—Mr. Hutchinson, Mr. Couper, Mr. Rivington, Mr. James Adams, Mr. W. Tay, Mr. McCarthy.
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OBSTETRIC PHYSICIAN—Dr. Palfrey.
ASSISTANT OBSTETRIC PHYSICIAN—Dr. Herman.
OPHTHALMIC SURGEONS—Mr. James Adams, Mr. Warcu Tay.
AURAL SURGEON—Mr. A. Gardiner Brown.
SURGEON-DENTIST—Mr. Ashley W. Barrett.
LECTURERS.

Medicine—Dr. Stephen Mackenzie. Surgery—Mr. James Adams. Operative Surgery—Mr. James Adams. Practical Surgery—Mr. Reeves. Anatomy—Mr. Rivington. Practical Anatomy—Mr. Frederick Treves. Physiology and Practical Histology—Mr. McCarthy. Chemistry—Dr. C. Meymott Tidy. Comparative Anatomy—Dr. E. B. Aveling. Pathology—Dr. Sutton. Midwifery—Dr. Palfrey. Toxicology—Mr. J. E. D. Rodgers. Botany—Dr. F. Warner. Medical Jurisprudence—Dr. C. Meymott Tidy. Materia Medica—Dr. Prosser James. Diseases of the Eye—Mr. J. Couper. Diseases of the Throat—Dr. Morell Mackenzie. Diseases of the Ear—Mr. J. Gardiner Brown. Anatomy and Pathology of the Teeth—Mr. Ashley W. Barrett.

The SESSION 1880-81 will COMMENCE on FRIDAY, OCTOBER 1st, 1880.

Fee for Lectures and Hospital Practice, 90 guineas in one sum, or 100 guineas by three instalments.

The Hospital contains nearly 800 beds. Number of in-patients during 1879 was 5,811; out-patients, 47,498.

The Resident and other Hospital appointments are free to full Students. The Resident appointments consist of five House Physicians, four House Surgeons, and one Accoucheurship. Also two Dresserships and two Maternity Assistantships.

Two Entrance Science Scholarships, value £60 and £40, and Two Duxton Scholarships, value £30 and £20, will be offered for competition at the end of September, to new Students; entries on or before September 20th.

A Scholarship, value £20, in Human Anatomy, to first year's Students.
A Scholarship, value £25, in Anatomy, Physiology, and Chemistry, to second year's Students.

A Scholarship, value £20, in Clinical Medicine.
A Scholarship, value £20, in Clinical Surgery.
A Scholarship, value £20, in Clinical Obstetrics.
The Duckworth Nelson Prize, value £10 (Biennial), in Clinical Medicine and Surgery.

Prizes, value £60, to Dressers of out-patients in Minor Surgery.
Special entries for Medical and Surgical Practice are made.
The London Hospital is now in direct communication by Rail and Tram with all parts of the Metropolis.

For Prospectus and particulars apply personally or by letter to Mile End, E. MUNRO SCOTT, Warden.

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LEEDS SCHOOL OF MEDICINE.

THE WINTER SESSION OPENS OCTOBER 1st.

THE INTRODUCTORY ADDRESS

Will be delivered by The President, Mr. CHARLES J. WRIGHT, Lecturer on Physiology, at Four P.M.,
After which the Prizes will be distributed.

Students can attend all the necessary Lectures and Hospital Practice at this School, or they may attend Single Courses of Lectures only. The Prospectus may be obtained on application at the School, Park Street, Leeds.

JOHN HORSFALL, Hon. Sec.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, PADDINGTON, W.

The INTRODUCTORY LECTURE by WALTER PYE, Esq., Friday, October 1st, 1880, at 3.0 P.M.

MEDICAL OFFICERS AND LECTURERS.

Consulting Officers—Dr. Chambers, Sir James Alderson, M.D., F.R.S., Mr. Lane, Mr. Spencer Smith, Mr. White Cooper.

Physicians—Dr. H. Jones, F.R.S., Dr. Sieveking, Dr. Broadbent.

Assistant Physicians—Dr. Cheadle, Dr. Shepherd, Dr. Lees.

Surgeons—Mr. Haynes Walton, Mr. J. R. Lane, Mr. Norton.

Assistant Surgeons—Mr. Owen, Mr. H. Page, Mr. Pye.

Physician-Accoucheur—Dr. Alfred Meadows.

Assistant Physician-Accoucheur—Dr. Wiltshire.

Surgeon in Charge of the Ophthalmic Department—Mr. Haynes Walton.

Aural Surgeon—Mr. Field. Surgeon-Dentist—Mr. Hayward.

Medical Tutor—Mr. Pepper.

Other Lecturers—Dr. Farquharson, M.P., Dr. Wright, Dr. Randall, Mr. Mivart, F.R.S., Rev. J. M. Crombie, Mr. Malcolm Morris.

The course of teaching at this School ensures careful and complete preparation for all the Examining Boards, the Public Services, and the higher University Examinations. Special instruction is given to Students preparing for the examinations of the University of London.

The MEDICAL TUTOR assists the Students in their Clinical Work and in preparing for the Final Examinations, so that the training of every individual Student is supervised. Ophthalmic, Aural and Dental Surgery, Comparative Anatomy, Histology and Pathology are carefully and systematically taught both by Lectures and Practical Demonstrations. There are also departments for the Diseases of Women and Children, of the Eye and Ear, of the Skin, and of the Throat.

SCHOLARSHIPS.—Two Scholarships of the value of £150 and £125. These Scholarships are awarded every year by open competition in Natural Science previous to entrance at the School. A Scholarship of £40 in Anatomy, carrying with it the appointment of Assistant Demonstrator. A Scholarship of £40 in Pathology, carrying with it the appointment of Assistant Curator. These are awarded annually.

PRIZES.—Prizes are given in each class at the close of every Session.

APPOINTMENTS.—Three House Surgeoncies, each tenable for one year. A Resident Obstetric Assistantship, tenable for six months.

These Resident Medical Appointments are open to the Pupils without expense of any kind, and are equivalent to Four Scholarships of the annual value of £50.

In addition to the preceding, there are the following paid appointments, the holders of which are eligible for re-election:—

The Resident Registrarship, of the value of £100 a year, with board and lodging. The Demonstratorship of Anatomy, of the value of £100 a year. The Medical Tutorship, of the annual value of £100.

For the Prospectus, apply to

A. B. SHEPHERD, M.D., Dean of the School.

THE MIDDLESEX HOSPITAL.—The WINTER

SESSION will OPEN on MONDAY, October 4th, with the Distribution of Prizes in the New Lecture Theatre. H.R.H. the Duke of Cambridge is expected to preside on the occasion. The Medical School, which is now being considerably enlarged, provides the most complete means for the Education of Students preparing for the University of London, the Colleges of Physicians and Surgeons, and the other licensing bodies.

TWO ENTRANCE SCHOLARSHIPS, of the annual value of £25 and £20 per annum, tenable for Two Years, will be competed for on OCTOBER 1st and 2nd.—Further information may be obtained from the DEAN or the RESIDENT MEDICAL OFFICER, at the Hospital.

ANDREW CLARK, Dean.

GUY'S HOSPITAL.

THE MEDICAL SESSION COMMENCES ON FRIDAY, OCTOBER 1st.

The Hospital now contains 635 beds, and includes wards for Obstetric, Ophthalmic, and other special departments.

SPECIAL CLASSES are held in the Hospital for Students preparing for the Examinations of the University of London and of the College of Surgeons.

THE MUSEUM OF ANATOMY, PATHOLOGY, AND COMPARATIVE ANATOMY contains 11,000 Specimens, 4,500 Drawings and Diagrams, an unique collection of Anatomical Models, and a series of 600 Models of Skin Diseases.

APPOINTMENTS.—The House-Surgeons and House-Physicians, the Obstetric Residents, Clinical Assistants and Dressers, are selected from the Students according to merit, and without payment. There are also a large number of Junior Appointments, every part of the Hospital Practice being systematically employed for instruction.

ENTRANCE SCHOLARSHIPS.—Open Scholarship, of One Hundred and Twenty-five Guineas, in Classics, Mathematics, and Modern Languages. Open Scholarship, of One Hundred and Twenty-five Guineas, in Chemistry, Physics, Botany, and Zoology.

PRIZES, &c.—Six Scholarships, varying in value from £10 to £50 each for general proficiency in Medical Study. The Treasurer's Gold Medal in Medicine; the Treasurer's Gold Medal in Surgery; the Gurney Hoare Prize of £25, for Clinical Study; the Sands Cox Scholarship of £15 per annum for three years for Physiology and Physics; the Michael Harris Prize of £10 for Anatomy.

For further information apply to the Dean.

Guy's Hospital, London, S.E., July, 1880.

UNIVERSITY OF GLASGOW.

THE MEDICAL SESSION will be opened with an Introductory Discourse by Professor CLELAND, M.D., F.R.S., on *Tuesday, the 26th of October, 1880.*

WINTER COURSES.

Zoology, 9 A.M.—Professor Young.
 Clinical Medicine, * 9 A.M.—Professor McCall Anderson.
 Clinical Surgery, * 9 A.M.—Professor George Buchanan.
 Chemistry, 10 A.M.; and Chemical Laboratory, 9 A.M. to 4 P.M.—Professor Ferguson.
 Anatomy: Senior, 11 A.M.; Junior, 2 P.M.; and Practical Anatomy, 9 A.M. to 4 P.M.—Professor Cleland, Dr. William Allen, and other Demonstrators.

Practice of Physic, 11 A.M.—Professor Gairdner.
 Materia Medica, 12 noon, and Pharmaceutical Laboratory.—Professor Charteris and Dr. Napier.
 Institutes of Medicine, 12 noon, and Physiological Laboratory.—Professor M'Kendrick, and Dr. John Barlow, the Muirhead Demonstrator.
 Surgery, 1 P.M.—Professor Macleod.
 Midwifery, 4 P.M.—Professor Leishman.
 Public Health.—Professor Simpson.

SUMMER SESSION.

During the Summer Session the Courses of Botany (Professor Bayley Balfour), Practical Chemistry, Forensic Medicine (Professor Simpson), and Clinical Medicine and Clinical Surgery are given. There are also Courses of Anatomy (Lectures on Embryology), Practical Anatomy, Practical Zoology, Vegetable Histology, and Practical Botany, Practical Physiology (including Histology), Practical Pharmacy, Practical Pathological Histology, Operative Surgery, and Diseases of the Eye.

LECTURERS.

Pathology—The Courses of the Pathologist of the Western Infirmary, Dr. Joseph Coats, and of the Pathologist of the Royal Infirmary, Dr. David Foulis, are recognised.
 Diseases of the Eye—Thomas Reid, M.D., Waltonian Lecturer (Summer Course).
 Insanity—Dr. David Yellowlees, Royal Asylum, Gartnavel (Summer Course).

WESTERN INFIRMARY.

This Hospital, near the University, contains beds for Medical and Surgical patients, and also a Ward for Skin Diseases, and one for Diseases peculiar to Women.

DEGREES.

Three Medical Degrees are conferred—viz.: Bachelor of Medicine (M.B.); Master in Surgery (C.M.); and Doctor of Medicine (M.D.); all of which are recognised by the Medical Act as qualifying for practice throughout the British dominions.

COST OF EDUCATION.

The fee for each class is £3 3s., and the total minimum expenses for classes and graduation fees for M.B. and C.M. amount to about £90. The fee for M.D. is £15 8s.

BURSARIES.

Bursaries to the annual amount of about £1,000 may be held by Students during their medical studies. For particulars, see Calendar.
 Full particulars connected with the course of education and examination required for the Degrees, and the Preliminary Examination required to be passed by Students before beginning medical study, will be found in the University Calendar; or a Syllabus of the regulations, fees, &c., may be obtained by applying to Mr. Moir, Assistant Clerk of Senate.

* Besides the Lectures of the Professors who are entitled to teach clinically, the Lectures of the other Physicians and Surgeons of the Western and Royal Infirmaries recognised by the University Court are accepted for graduation.

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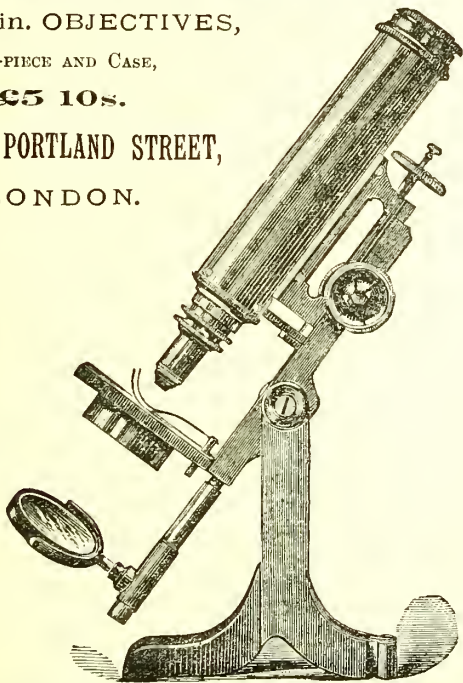
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THE OWENS COLLEGE, MANCHESTER.

The COLLEGE SESSION, 1880-81, will begin, in the Medical Department, on Friday, the 1st October; in the Arts, Science, and Law Department, on Tuesday, the 5th October; and in the Evening Classes Department, on Monday, the 11th October.

Candidates for admission must not be under fourteen years of age, and in the Arts and Science Department, those under sixteen will be required to pass a Preliminary Examination in English, Arithmetic, and elementary Latin.

Prospectuses are published for each of these Departments, and may be obtained on application to the Registrar.

Fuller details respecting the Courses of Instruction, Fees, Scholarships, Exhibitions, &c., will be found in the Calendar, which may be obtained early in September (price 3s., post-free 3s. 6d.) from Mr. Cornish, 33 Piccadilly, and other Booksellers in Manchester, and from Messrs. Macmillan & Co., London.

The Syllabus of the Evening Classes may now be obtained from Mr. Cornish (price 6d., post-free 7d.).

J. HOLME NICHOLSON,
Registrar.

THE VICTORIA UNIVERSITY, THE OWENS COLLEGE, MANCHESTER.

A Prospectus, containing information on the Course of Instruction, Fees, Scholarships, Exhibitions, &c., may be obtained on application to the Registrar.

The Calendar will be published early in September.

J. HULME NICHOLSON,
Registrar pro tem.

ROYAL SCHOOL OF MINES.

DEPARTMENT OF SCIENCE AND ART.

During the Thirtieth Session, 1880-81, which will commence on the 1st of October, the following COURSES of LECTURES and PRACTICAL DEMONSTRATIONS will be given:—

1. Chemistry. By E. Frankland, Ph.D., D.C.L., F.R.S.
2. Biology. By T. H. Huxley, LL.D., F.R.S.
3. Mineralogy. } By Warington W. Smyth, M.A., F.R.S., *Chairman*.
4. Mining. }
5. Geology. By John W. Judd, F.R.S.
6. Applied Mechanics. By T. M. Goodeve, M.A.
7. Physics. By Frederick Guthrie.
8. Metallurgy. By W. Chandler Roberts, F.R.S.
9. Mechanical Drawing. By Rev. J. H. Edgar, M.A.

The Lecture Fees for Students desirous of becoming Associates are £30 in one sum, on entrance, or two annual payments of £20, exclusive of the Laboratories.

Tickets to separate Courses of Lectures are issued at £3 and £4 each. Officers in the Queen's Service, Her Majesty's Consuls, Acting Mining Agents and Managers may obtain Tickets at reduced prices.

Science Teachers are also admitted to the Lectures at reduced fees. For Particulars (free) or for Official Prospectus (price 6d., by post 7d.), apply to the Registrar, Royal School of Mines, Jermyn Street, London. S.W.

F. W. RUDLER, Registrar.

BIRKBECK LITERARY AND SCIENTIFIC INSTITUTION.

SOUTHAMPTON BUILDINGS, CHANCERY LANE.

During the Session 1880-81, the following Classes in Chemistry will be held in the Institution. The course of instruction is specially designed to prepare Students for the Government Examination in May, 1881. Students preparing for the London University and other Examinations are recommended to consult the Professors.

INORGANIC CHEMISTRY.

A COURSE OF THIRTY LECTURES to Elementary Students, fully illustrated by Experiments, will be given by Mr. GEORGE CHALONER, F.C.S., commencing Tuesday, October 5th, at half-past 8 o'clock, and continued on successive Tuesdays at the same hour.

ALSO A Course Thirty Lectures on CHEMISTRY and ANALYSIS for Advanced Students, on Saturday Evenings, at 7 o'clock, commencing October 9th.

ORGANIC CHEMISTRY.

A COURSE OF THIRTY LECTURES will be given by Mr. H. CHAPMAN JONES, F.C.S., commencing Tuesday, October 5th, at 7 o'clock.

AN EXTRA COURSE OF LECTURES, on the more advanced branches of the subject, will be arranged, if there is a sufficient number of Students requiring it.

Fees for each Course: Members of the Institution, 3s.; Non-Members, 6s. Students cannot be admitted after November 9th.

PRACTICAL CHEMISTRY.

CONCURRENTLY with the Lectures, Classes will meet in the Laboratory of the Institution for the practice of CHEMICAL MANIPULATION and ANALYSIS, under the direction of Messrs. G. CHALONER and H. CHAPMAN JONES. The hours of attendance are from 4 to 6 (Elementary), and from 8 to 10 (Advanced), on Saturday Evenings, commencing on Saturday, October 9th; Preliminary Meeting, Saturday, October 2nd, at 8 p.m.

Fees for each Class: Members, 15s.; Non-Members, 20s.

A CLASS in PRACTICAL BLOWPIPE ANALYSIS and ASSAYING will commence on Tuesday, October 5th, conducted by Mr. GEORGE CHALONER.

Fees for the Course of 30 Lessons: Members of the Institution, 5s.; Non-Members, 8s.

Syllabus, with full details of all Classes, Lectures, Examinations, &c., may be had on application to the Secretary, price 4d., or post free, 5d. PROSPECTUS GRATIS.

See page 23.

TO PHARMACEUTICAL STUDENTS.

The next COMPETITION for the

PATTISON PHARMACEUTICAL SCHOLARSHIP

Will be held on

TUESDAY & WEDNESDAY, SEPTEMBER 28th & 29th.

The holder is entitled to FREE EDUCATION in all the Branches for the Minor Examination.

For all Particulars apply to Secretary, Edinburgh School of Pharmacy, Marshall Street, Nicolson Square, Edinburgh.

KING'S COLLEGE, LONDON. — MEDICAL

DEPARTMENT.—The WINTER SESSION will be OPENED on Friday, October 1st, at Four P.M., when the Distribution of Prizes will take place, and an Address be given by Prof. George Johnson, M.D., F.R.S.

A SPECIAL COURSE of INSTRUCTION has been established for the Preliminary Scientific Examination at the University of London, including Inorganic Chemistry, Practical Chemistry, Practical Biology, Experimental Physics, Zoology, and Botany.

The following Entrance Scholarships will be given in October next, viz.:—

Three on the Warneford Foundation, viz., two of £75 and one of £50, for previous education in General Literature and Science.

Two by the Clothworkers' Company, one of £100 and one of £50, for proficiency in Science only.

Two on the Sambrooke Foundation, viz., one of £60 and one of £40, or proficiency in Literature and Science.

During the ensuing Session there will be awarded five Medical Scholarships, viz., one of £80, one of £30, and three of £20, for Professional Efficiency. One for Chemistry, of £40; one of £50, for Resident Student only; and two Sambrooke Registrarships of £50 each.

Endowed prizes of the value of 50 guineas, and College prizes of the value of £60 are also awarded annually.

For Prospectuses and other information apply, personally or by post card to J. W. Cunningham, Esq., King's College, London; or to Professor Bentley, Dean of the Department.

ROYAL COLLEGE OF SCIENCE FOR IRELAND

STEPHEN'S GREEN, DUBLIN.

SCIENTIFIC AND TECHNICAL EDUCATION.

SESSION 1880-81.

This College supplies a complete Course of Instruction in Science applicable to the Industrial Arts, especially those which may be classed broadly under the heads of CHEMICAL MANUFACTURES, MINING and ENGINEERING.

A Diploma of Associate of the College is granted at the end of the Three Years' Course.

There are Four Royal Scholarships of the value of £50 each year with free education, including Laboratory Instruction, tenable for five years. Two become vacant each year. They are given to Students who have been a year in the College.

The Fees are £2 for each Course, or £10 for all the Courses of each year, with the exception of Laboratory Practice.

CHEMISTRY (THEORETICAL AND PRACTICAL), METALLURGY, &c. Professor HARTLEY, F.C.S.

MATHEMATICS, MECHANICS, AND MECHANISM—Professor HENNESSY, F.R.S.

DESCRIPTIVE GEOMETRY, DRAWING, ENGINEERING, AND SURVEYING—Professor PIGOT, C.E., M.R.I.A.

EXPERIMENTAL PHYSICS (THEORETICAL AND PRACTICAL)—Professor BARRETT, F.R.S.E., F.C.S.

MINING AND MINERALOGY—Professor O'REILLY, C.E., M.R.I.A.

BOTANY—Professor McNAB, M.D., F.L.S.

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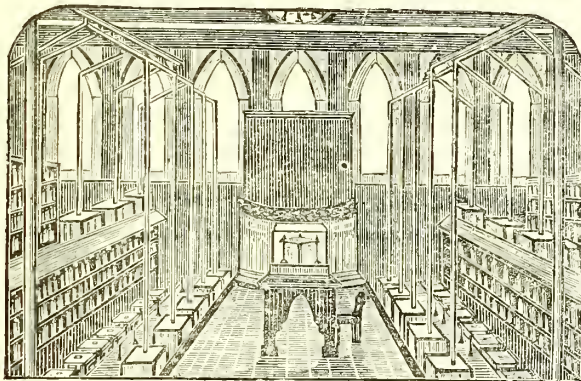
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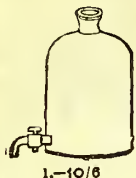
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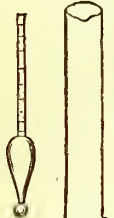
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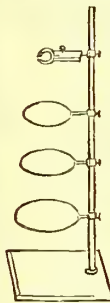
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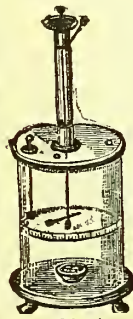
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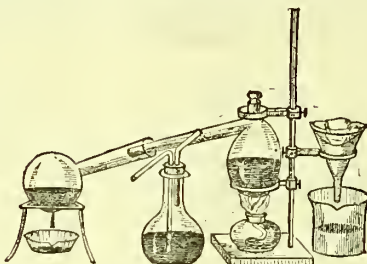
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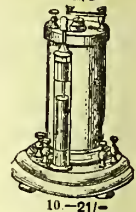
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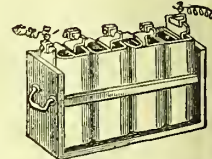
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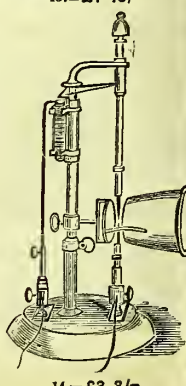
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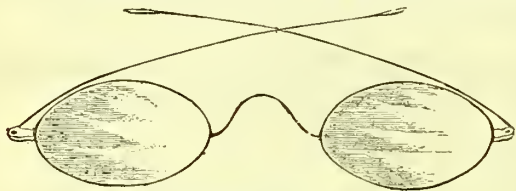
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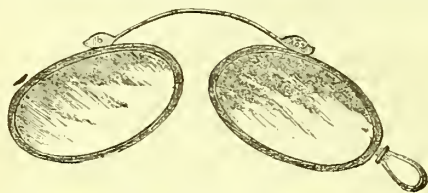
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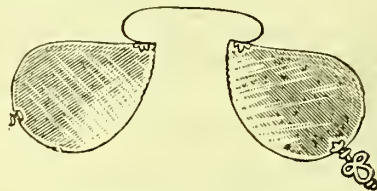
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FOR DISPOSAL, a Dispensing and Retail Business, in a good market town in the Midlands; has been in the same hands 13 years; illness and increasing infirmity cause of disposal; a good opportunity for an energetic man. Address, A., 2 Priory Terrace, Ford Street, Coventry.

FOR SALE, a genuine Prescribing and Retail Business, in a densely populated neighbourhood, and a good opening for a Dentist; main thoroughfare; corner shop, plate-glass front, and part of the house let; south coast. Apply to C. M., Portsmouth.

TO CHEMISTS.—In a busy thoroughfare, commanding position, S.W.; good sized house, private and back entrance to garden; plate-glass front; long lease; rent £80, taxes £20; price £500, or would take a Partner. For particulars address H. S., Barclay & Sons, 95 Farringdon Street.

COUNTY OF DURHAM.—An Old-established Drug and Dispensing Business, situate in one of the leading thoroughfares of a very large commercial town. Class of trade, light retail with large counter-prescribing. Address N. V. T., care of Messrs. Barron, Harvey & Co., Giltspur Street, London, E.C.

CHEMICAL FACTORY at Brussels for immediate Disposal. There is no factory of Pharmaceutical Chemicals in Belgium. Fine position; cost of entering, 20,000 francs (£800); rent 2,000 francs (£80) per annum, including works and dwelling. Address, immediately, M. A. Clement, 186 Rue Belliard, Brussels, Belgium.

FOR DISPOSAL, an Old-established Chemist and Druggist's Business, with Post Office; the present proprietor, after 30 years' successful management, is desirous of retiring; a good house attached; a lease, if required, can be had. Address, E. H., care of Henry Jackson, Esq., 2 Brookside Alley, Old Post Office Place, Liverpool.

MANCHESTER.—A light Retail and Dispensing Business, recently established and rapidly improving; last year's returns, £342; cash price, £260, stock and fixtures worth the amount; also some furniture included in price; rent, £45; good dwelling house; full investigation. H. B., Junior Reform Club, Manchester.

FOR SALE, an Old-established Dispensing, Prescribing, and Family Business, with Wholesale Wine and Spirit Trade (not an agency), working expenses nominal; most convenient house and premises, leasehold; rent £40; returns about £1,500; profits from £500 to £600 per annum. Address, "Alpha," care of Barron Squire, Bush Lane, Cannon Street, London.

GOOD OPPORTUNITY, Old-established profitable Retail, in large seaport; handsome shop, well-stocked; splendid position; returns £450, increasing, could be soon doubled by zealous man; vendor enters Medical School in October; open to offers for remainder of month; will bear fullest investigation. Particulars from X., care of G. C. Druce, F.L.S., High Street, Oxford.

GENUINE good-class Dispensing and Light Retail Business; West of England; established nearly 30 years; will be sold for little more than value of stock and fixtures (about £500) to an immediate cash purchaser, owner wishing to go abroad for health before winter; reference given and required. "Pharma," care of Messrs. Hearon, Squire & Francis, 5 Coleman Street, London.

AN OIL MERCHANT in Manchester, with a good connection, established 30 years, would sell his Business; there are specialties connected with it which might be considerably developed; introduction to customers would be given with other advantages; from £600 to £800 required. Address, "Oils," care of Thomas Toulminson & Son, 41 Corporation Street, Manchester.

PETERBOROUGH.—Small Retail, with profitable Teeth Extracting and Medicated Vapour and Water Baths attached; established 30 years; capital situation; corner shop; no opposition near, and no other chemist-dentist in the city; easy terms; present proprietor leaving the town and relinquishing the trade; splendid chance for new beginner with small capital. M. Colam, Peterborough.

DRUGGIST'S SHOP in a village near Birmingham, of 12,000 population, and only one Druggist's shop; nicely fitted; rent £16; garden 60 yards by 12 yards, a nice little storeroom at back, three rooms upstairs, and sitting room, kitchen, and good cellar; a good opportunity for a pushing young man with small capital. Apply to R. Tomlinson, Druggists' Fitter, 15 St. Paul's Square, Birmingham.

MR. HINE GILBERT, Chemists' Valuer, 17 Hart Street, Bloomsbury Square, London, has Businesses for Sale at Dover, for £300; Kent, £1,000; Newcastle, £300; Derby, £1,700, part cash or partnership; Nottingham, £600; Hackney, £600, part cash; Nottingham, £300; Holloway, £300; Walmer, £600; Torquay, £300; Hull, £140; Kilburn, £375; Islington, £600, one-third in cash; Surrey, £1,400; Yorks, £1,800; Somerset, £2,000; and many others, mostly personally inspected.

RETAIL AND DISPENSING; handsome well fitted corner shop, large house, with private entrance; splendid position in one of the best suburbs N.W.; some important advantages render it an exceptional opportunity for a good business man with small capital; satisfactory reasons for disposal; returns, £10 per week, increasing; price £350; part may remain on good security; must be sold this month. Address, S. V. R., Messrs. Sanger & Sons, 259 Oxford Street, W.

TO CHEMISTS AND DRUGGISTS.—To be Disposed of, in consequence of the decease of the late proprietor, a good and very old established (30 years) Drug Business, in a pleasant and rapidly increasing township a few miles from Manchester. The premises contain a good shop, 4 bed rooms, 2 entertaining rooms, 3 good cellars, and outbuildings, consisting of shed, stables, and coach house accommodation; garden about 50 yards by 10 yards; rent £55. All particulars may be obtained from Messrs. Woolley, Sons & Co., Market Street, Manchester.

TO CHEMISTS AND DRUGGISTS.—Messrs. James Milne & Co. are instructed by the Proprietor of a *bona fide* Retail and Dispensing Business, situate in a large Market Town, the centre of an important Agricultural District in the West of England, to dispose of the same by private contract. The Agricultural Trade, which has hitherto received little attention, may easily be cultivated and developed by anyone having experience in that department. Returns of the last three years average rather more than £500 per annum. Rent £70; about six years of lease unexpired. Commodious Dwelling-house and modern, well-fitted Shop. Centrally situated; one of the best positions in the town. All further information can be obtained from the Brokers, at their Offices, Caledonian Chambers, St. Stephen's Avenue, Bristol.

EMPLOYERS WANTING ASSISTANTS.

WANTED, a Junior Assistant. Address, stating age, terms, &c., to E. Frowd, Chemist, Portishead.

A JUNIOR Wanted; out-door. T. Whales, 41 London Road, Southwark, S.E.

IMMEDIATELY.—Qualified Man to take charge of small retail; hours, 8.30 to 8; state age, reference, experience, and salary, indoor and out. Apply, A. B. C, Post Office, Ludlow.

WANTED, a Junior Assistant in a Dispensing establishment, giving two days per week for Study, Lectures, Classes, &c. Address, with full particulars, Mr. Lewis Salt, Post Office, Liverpool.

WANTED, an Assistant, Junior or Improver, with a knowledge of Telegraphy; good character indispensable; capital opportunity for an Improver in the Drug business. Apply to Yorath & Co, Cardiff.

WANTED, a trustworthy Assistant (out-door); must be able to extract teeth and prescribe, also accustomed to mixed business. Apply, stating age, terms, &c., to Alex. P. Patterson, 197 Bridgman Street, Bolton.

TRAVELLER Wanted for the Sale of Essences and Chemicals to the Aerated Water Trade; one having a connection in the Northern and Midland Counties preferred. Apply, C. F., office of CHEMIST AND DRUGGIST, 41A Cannon Street, London.

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A DENTIST in large practice, holding a Hospital Appointment, has a vacancy for a pupil; a well-educated respectable Youth would be taken without a premium. Address, "Dens," Enderley, Malvern.

A JUNIOR ASSISTANT of 3 years' experience in Dispensing, &c., may have a good opportunity of time for Study, Lectures, Classes, &c., in Liverpool, in or out of house; state past experience and salary required, &c., C. C. C., care of Mr. Jackson, Old Post Office Place, Liverpool.

FOR THE EAST.—Immediately, a well-qualified Assistant, who has passed the major examination; aged about 20, and if married preferred. Address, A. Z., care of Messrs. Geo. Curling & Co., 30 St. Mary Axe, E.C.

TO CHEMISTS ASSISTANTS, immediately, a well-qualified Assistant for a country business; aged about 22; an abstainer preferred. Apply, with full particulars and references, to Allan Hick, Pharmaceutical Chemist, Wath-upon-Deane.

A CHEMIST in Ipswich requires immediately a Junior Assistant of a gentlemanly manners and address. Apply, under cover, to the Rev. J. Rayne, Rosehill Road, Ipswich, stating age, height, references, and salary, with carte.

ASSISTANTS WANTING SITUATIONS.

MR. SMITH, 20 Dean Street, Bedminster, Bristol, Chemist's Confidential Manager.

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AS ASSISTANT or Manager in a Mixed Business; country preferred; aged 30. Address, T. C., care of W. C. Fitch, Chemist, Littleport.

AS ASSISTANT, or to Manage; last 9 years in Midland Counties; well up in veterinary preparations; can extract teeth; aged 29; good references. Address, C. G., Medical Hall, Sandy, Beds.

R. E. BUNN, of 12 Unity Place, Woolwich, Locum Tenens and Temporary, will be disengaged next week; terms moderate; references excellent. Present address, Mr. Dixon, Chemist, Rickmansworth, Herts.

SITUATION Wanted by a Young Man who understands the manufacture of vermin paste, vermin killer, and phosphor paste; also insect powder trade. A. B., Office of THE CHEMIST AND DRUGGIST, 44A Cannon Street.

AS MANAGER of Branch or out-door Assistant; aged 29; well accustomed to mixed trade, dispensing, prescribing, &c.; at liberty 21st inst. Address, A. B., 34 Queen's Road, Upton Park, near London.

WANTED, to Apprentice a well-educated Youth to a Chemist and Druggist. Address, Alfred Clifford, Bourton-on-the-Water, Gloucestershire.

ANY CHEMIST Requiring the Services of an intelligent, industrious Assistant as Manager of Branch or Head Counterman can hear of one by applying to "Pharmaceutical Chemist," Messrs. Clarke, Bleasdale & Co., York.

IMPROVER and Dispenser to a Surgeon, aged 21 years, desires a Situation with a Chemist; reference to present employer; salary, to commence with, £10 or £15, with a yearly rise. Address, H. Cottrell, Post Office, Reading, Berks.

COMMERCIAL TRAVELLER.—An experienced Traveller, with an established connection amongst Chemists, Druggists, Patent Medicine, &c., in England, Ireland, Scotland, and Wales, is now open to Represent a First-class House; character and references good. H. Tucker, 29 Colchester Street, Finsbury, S.W.

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MISCELLANEOUS.

TO BE DISPOSED OF, an article in much request by Dentists; a steady sale already established without any advertising, a London Wholesale House having undertaken to push the article; could be much increased; it is protected by registration. For particulars address Mr. W. H. Shaw, 23 Harbour Street, Ramsgate.

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A Pharmacist of extensive experience in the Wholesale and Retail Trades, with a thorough knowledge of the best markets for the multifarious requirements of Colonial Traders, and able to give prompt and personal attention to every item, will be glad to ship additional indents at a commission of 2½ per cent., and all disbursements. Draft against documents, with approved London references. References, to well-known firms at home and clients abroad, on application to "Exporter," Millington & Hutton, Budge Row, London, E.C.

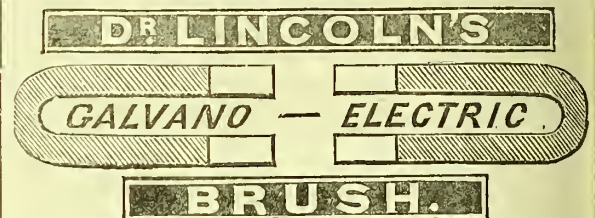
JAMES C. CHUBB

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Loose, at 7s. per gross, and in boxes at 8s., 9s., and 10s. per doz.; Extra-scented Violet Powder, prepared with wheat starch, in 1d. boxes, 7s. per gross, 2d. boxes, 14s. per gross, ½-lb. packets, 2s. 6d. per doz.; Prepared Fuller's Earth, in 1d. boxes, 7s. per gross, 2d. boxes, 14s. per gross, and ½-lb. boxes, 2s. per doz., through the Wholesale Houses, or from 29 OLD STREET, LONDON, E.C.; and will forward list of articles packed by him on application.

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Concentrated IN VACUO to a
Strength double that of the Succus Taraxaci of the Pharmacopœia.

The process by which this preparation is manufactured entirely excludes the injurious effects of Heat, Oxidation, and Fermentation. The active constituents remain quite uninjured; and, owing to the great care with which any incipient change is guarded against during the manufacture, this preparation **KEEPS PERFECTLY**, whilst the expressed Juice of the British Pharmacopœia, although containing 25 per cent. of Rectified Spirit, quickly becomes mawkishly sweet, through the conversion of its active constituents into inert saccharine matter.

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" Buchu "	1/6 "	" " mucilaginous matter	...	12/-	"
Dec. Sarsæ. Co. Conc.	4/- "	" Glycyrrhizæ Liq.	...	2/8	"
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Conf. Sennæ, warranted very active	1/6	"		Liq. Sennæ Dule.	2/6 "

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WHOLESALE PHARMACEUTICAL CHEMISTS,
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SPECIALITE:—Concentrated Infusions, Liquid Extracts, &c., prepared in vacuo from selected drugs only, at prices same as charged by all Wholesale Houses.

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IMPORTANT NOTICE.

THE NINTH ANNUAL THREE DAYS'

TRADING EXHIBITION**MACHINERY AND APPLIANCES**

USED EXCLUSIVELY IN THE MANUFACTURE OF

AERATED AND ARTIFICIALLY-PREPARED MINERAL WATERS,

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On Tuesday, Wednesday, and Thursday,
The 19th, 20th, and 21st days of October, 1880.

The Exhibits will consist of Soda Water Machinery, Gasometers, Gas Generators of all descriptions, by various makers, Steam and Gas Engines, Patent Stoppered and Plain-mouthed Glass Aerated Water Bottles, English and Foreign made Syphons, FILTERS, DRUGS, ESSENCES, and FRUIT FLAVOURINGS, Packing Cases, Show Cards, Corks, Vans, Carts, &c., &c.

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THE INTERNATIONAL FOOD EXHIBITION

OF 1880,

AGRICULTURAL HALL, LONDON, N.,

OCTOBER 13th, 14th, 15th, 16th, 18th, 19th, and 20th, 1880.

LATEST APPLICATION FOR SPACE, SEPTEMBER 15th.

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DRUGS, CHEMICALS, MEDICAL PREPARATIONS, TOILET REQUISITES, &c.EXHIBITS RECEIVED,
OCTOBER 11th and 12th.EXHIBITION OPENS,
WEDNESDAY, OCTOBER 13th.EXHIBITION CLOSES,
WEDNESDAY, OCTOBER 20th.

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THE "PERFECT" CONSOLIDATED DENTIFRICE.

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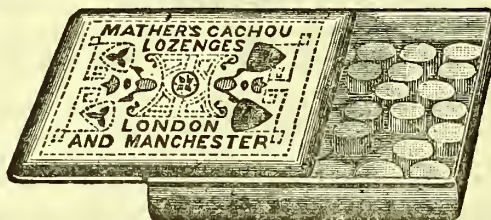
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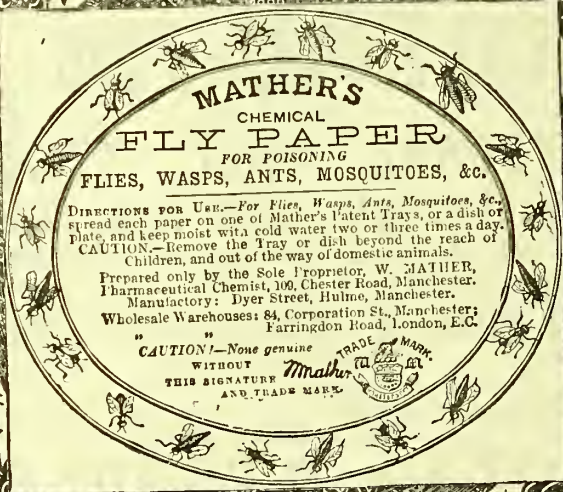
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September 15, 1880.

SCALE OF CHARGES FOR ADVERTISEMENTS.

Whole Page, £5. Half Page, £2 15s. Third Page, £2. Quarter Page, £1 12s. Sixth Page, £1 5s. Eighth Page, 18s.

Special Rates for Wrapper and pages preceding and following Literary matter, also pages facing inside of Wrapper. The above Scale of Charges will be subject to a discount of 10 per cent. upon 7 and 20 per cent. upon 13 insertions, prompt quarterly payments.

N.B.—An order for 13 insertions means 12 in the CHEMIST AND DRUGGIST and 1 in the CHEMISTS' AND DRUGGISTS' DIARY. The same rule also applies to an order for 7 insertions, or to an order for insertion until countermanded, if such order is in force in October of any year.

All Advertisements intended for insertion in the current Month must be sent to the PUBLISHER OF THE CHEMIST AND DRUGGIST on or before the 12th, except Employers' and Assistants' Advertisements, which can be received up to 10 A.M. on the morning previous to publication.

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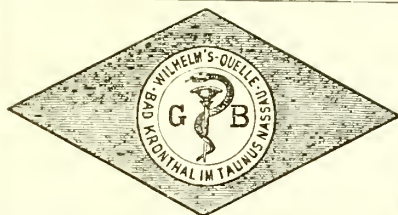
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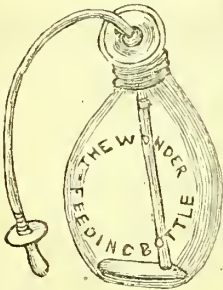
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White Glass, 12/ gross, fitted complete with Box

Tops, 30/ gross; 1/ kind, fitted complete, each in

Box with Tube Brush, 50/ gross.—Bent, 1/ kind,

57/ gross; 6/ kind, fitted with Boxwood Tops, 32/ gross

All Fittings for Feeding Bottles sold separately and at

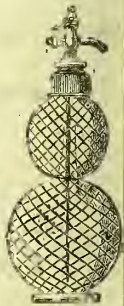
very low prices.

POMADE BOTTLES, fitted with Box Caps—2oz., 12/

3oz., 16/ 4oz., 18/ gross.

Special Quotations given for any kind of Bottles.

[TERMS—CASH.]



ESTABLISHED 1843.

M. A. CRAVEN, Wholesale & Export Confectioner,

AND MANUFACTURER OF

MEDICATED LOZENGES, REFINED LIQUORICE, JUJUBES, &c.

PAVEMENT, CONEY ST., & COPPERGATE, YORK.

Lozenges of all descriptions made from Customers' private formulæ (or ingredients) and stamped with name if required.

PRICE LIST ON APPLICATION.

G. B. KENT & SONS,

IMPORTERS OF
BRISTLES.

BRUSH MANUFACTURERS,

IMPORTERS OF
SPONGE.

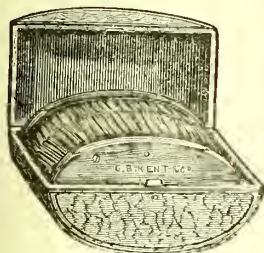
11 GREAT MARLBOROUGH STREET, LONDON, W.

SILVER MEDAL]

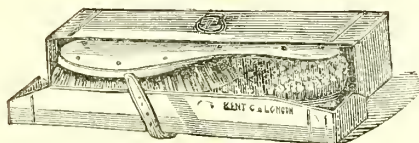
ESTABLISHED 1777.

[PARIS, 1878.

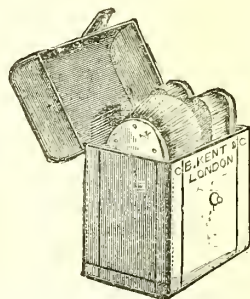
Kent's Solid Leather Cases, Fitted with Brushes, &c., &c.



Case in Alligator Skin.



Solid Leather Cases, Fitted.




Cases only to contain one pair of Military Hair Brushes 3s. each.

KENT'S TOOTH BRUSHES

Are manufactured at their Factory at Victoria Park, expressly set apart for this one description of Brush.





Price per dozen

First Quality *G.B. Kent & Co*  *London* 6/6

Second Quality *Imperial*  *Quality* 5/0

Third Quality **WARRANTED**  **LONDON** 4/0

Fourth Quality **WARRANTED**  **SECURE** 3/6

Fifth Quality **WARRANTED**  **SOUND** 3/0

Badger Hair Tooth Brushes ..	4/6	6/0	8/0	10/0	per doz.
Children's " ..	3/0	3/6	4/0	"	
Tooth Brush Guards ..	Metal, 3/3	Porelain, 5/0	"	"	
Japanned Wet Brush Holders ..	3/3	5/6	6/6	13/0	"

SHAVING BRUSHES.

Prepared Hair ..	2/0	4/0	6/0	7/6	9/0	12/0
Badger " ..	8/0	9/6	14/0	18/0	21/0	24/0 28/0 32/0

KENT'S NAIL BRUSHES.



Bent Back ..	4/0	7/0	8/6	13/6	12/0	14/6
Round End ..	4/0	7/0	8/6	11/0	13/0	15/0
Roached Grooved ..	19/0	24/0	28/0	32/0	36/0	40/0



	No. 22/0	22	23	24
	8/6	13/0	17/6	22/0
Handled Nail Brushes ..	4/0	4/6	7/0	8/0 10/6 12/0 16/0 per doz.
Wood ..	Trepanned	12/0 16/0 18/0 21/0 24/0 27/0	"	"
" ..	Fibre	21/0 27/0 30/0 36/0 42/0 48/0 54/0 per grs.	"	"



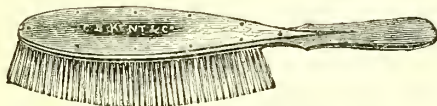
SPONGES ON STRINGS.



KENT'S HAIR BRUSHES, IN WOOD, IVORY, SHELL & PEARL.



KENT'S COMBS, IN INDIA RUBBER, IVORY, OR SHELL.



KENT'S CLOTH BRUSHES, IN WOOD AND IVORY.



KENT'S ROACH CLOTH BRUSHES.



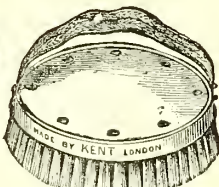
KENT'S HAT BRUSHES, IN WOOD AND IVORY.



SPONGE BAGS OF ALL KINDS.



KENT'S HAND MIRRORS,
Manufactured by
G. B. KENT & SONS'
PATENT MACHINERY,
Are unsurpassed for Price
and Quality.



KENT'S FLESH BRUSHES.

KENT'S PAINTING BRUSHES are of the highest quality, and warranted of standard sizes. **KENT'S HOUSEHOLD AND STABLE BRUSHES** of every description.

G. B. KENT AND SONS' ILLUSTRATED PRICE CURRENT FOR 1879, FREE ON APPLICATION.

ESTABLISHED A.D. 1815

PHOENIX MARKING INK

GENUINE INDELIBLE

THE LEADING & STANDARD ARTICLE

PREPARED ONLY BY THE WIDOW OF THE LATE
JOHN MURPHY
CHEMIST AT THE ORIGINAL ESTABLISHMENT
11, NILE STREET, EAST ROAD, HOXTON N.

NO OTHER ADDRESS - BEWARE OF WORTHLESS IMITATIONS.

A E I

THE MOST PERFECT
MARKING INK,
For Writing or Stamping on Linen, Cotton,
Silk, &c.

BAINBRIDGE & POUND

Strongly recommend this Ink to the Trade generally for its Permanency and Indestructibility; it requires no heat, flows freely from the pen, does not blot or run, and cannot be removed without destroying the fabric.

Sold in Bottles, 6d., 1s., 2s. 6d., 4s. 6d., 7s. 6d., & 12s. 6d. each, by all Chemists and Medicine Vendors.

WHOLESALE DEPOT—

60 LEATHER LANE, LONDON.

A Liberal Discount to Large Buyers and Shippers.

IVORY HAIR BRUSHES
Mirrors & all other Ivory Toilet Articles,

IVORY GOODS IN GENERAL,
Wholesale & for Exportation & the Trade only.

AT HENNING BROS. Ivory Works,
11, HIGH STREET, LONDON, W.C.

Worn Ivory Brushes Refilled and polished to look Equal to New.

Shapes, Sizes, and Prices of Ivory Brushes, Mirrors, and Powder Boxes, &c., post free.



HOOPER'S MARKING INK



May be relied upon to give a permanent Black impression that will not wash out. Below is one of many Testimonials.

From Messrs. THRESHER & GLENNY, Hosiers
to H.R.H. the Prince of Wales.

We have for many years used Hooper's Marking Ink for marking linen, &c., and can confidently say that no other ink gives us such satisfaction, or produces so black and permanent an impression without injury to the fabric.



ADVANTAGES:

It possesses in a pre-eminent degree the first essentials of any Marking Ink—Permanence and Blackness—which the experience of a quarter of a century has proved. The Ink is fluid and never dries up in the bottles, which is the case with most of the Marking Inks in use at present. When once introduced it is a source of satisfaction to the pharmacist and the customer.

Sold in 1/- Card Cases, at 5/6 per doz.; 1/- Wood Cases, 6/6 per doz.; and in 6d. Bottles, 3/- per doz.

SPECIAL TERMS FOR LARGE QUANTITIES.

May be obtained through Messrs. BARCLAY & SON; Messrs. NEWBERRY & SONS, Newgate Street; Messrs. MAW & SON; Messrs. B. HOOPER & CO., London Bridge, and most of the leading Wholesale Houses; and direct from Proprietor,

24 RUSSELL STREET, COVENT GARDEN.



CAUTION**I WILL PROSECUTE IN EVERY CASE OF MIS-
REPRESENTATION OR COLOURABLE IMITATION.**

Our Wholesale Prices for all new 6d. & 1s. Specialities
TRADE MARK,] 30s. and 60s. per gross. [CRYSTAL PALACE.

Wholesale and Retail Dealers, Merchants, Shippers, and Travellers are specially invited to order and see Samples, ONE CARD or BOX, of the following Articles, which for Price and Quality shall be a

MARVEL OF CHEAPNESS.

We intend to Advertise in almost every Paper in every City and Town throughout THE WORLD, and force the Sale of our World-wide Patent and Specialities. Every Chemist should insist upon seeing these Goods.

BOND'S Crystal Palace Solid Disinfectant Tablet.—By Royal Letters Patent—6d. Boxes, 30s.; 1s., 60s. per gross—6d. and 1s. 6d. Boxes contain 6 tablets, 1s. Boxes, 12 tablets; each tablet costs 1d.; or in 6 doz. boxes to Retail at 1d., 6s. per gross, and will disinfect any room, closet or cellar, will destroy all Putrid Liquids and Foul or Poisonous Gases—6d., 30s.; 1s., 60s. per gross. Hickisson's No. 3271 A.P.—6d., 30s.; 1s., 60s. per gross.

BOND'S Crystal Palace Diamond Cement.— $\frac{1}{2}$ dozen upon Grand Show Card—Retail 6d. and 1s. 30s. and 60s. per gross.

BOND'S Crystal Palace Floral Bloom of Beauty Face Powder.—Upon Grand Show Cards of $\frac{1}{2}$ dozen, 6d. or 1s. 6d., 30s.; 1s., 60s. per gross.

CAUTION.—BOND'S CRYSTAL PALACE GOLD MEDAL MARKING INK.—In Her Majesty's High Court of Justice, in junction, with costs and damages, has been granted me against a person for manufacturing and selling a colourable imitation, and with costs and damages against a retail dealer for selling the same. (The law.) A trade mark is not only a symbol or character, but general appearance, whereby the public would be deceived. Works, 75 Southgate Road, London. Three gold, six silver, and other medals. Ask for Bond's Crystal Palace Gold Medal Marking Ink, and see that you get it. Dealers, do not defy the law.

BOND'S Crystal Palace Black Beetle and Insect Powder.—Upon Show Cards—6d. and 1s. 6d., 30s.; 1s., 60s. per gross.

BOND'S Crystal Palace Royal Crimson Marking Ink.—With Box and Floral Initial in India Rubber, Handsome Pad and Distributor, to Retail at 1s. Price 72s. per gross. Great novelty.

BOND'S Crystal Palace Gold Paint.— $\frac{1}{2}$ dozen upon Grand Show Card. Retail 6d. and 1s. 6d., 30s.; 1s., 60s. per gross. Order a card.

BOND'S Crystal Palace Propelling 6d. and 1s. Marking Ink Pencil.— $\frac{1}{2}$ dozen upon Handsome Show Cards. New Style, very Grand Ivory and Silver Plated. 6d., 30s.; 1s., 60s. per gross.

By Royal Letters Patent, **BOND'S CRYSTAL PALACE SOLID HAIR RESTORER.** In Tablets at 6d. and 1s. per Box, or in 4-oz. and 8-oz. Bottles, to Retail at 6d. or 1s.

6d. 30s. 30s. 60s.

1s.

CAUTION.—BOND'S CRYSTAL PALACE GOLD MEDAL MARKING INK. Genuine label, "Prepared by the Daughter of the late John Bond." Vendors see actions 1876 and 1877 for misrepresentation and colourable imitations. £100 reward upon criminal conviction for conspiracy, misrepresentation or colourable imitation.

6d., 30s. per gross. 1s., 60s. per gross.

Chemists, refuse all others. Let the Public have the old favourite. Where are all the latest novelties?

30s. 30s. 60s. 60s.

Travellers and please send for Samples.

Wholesale Houses

CAUTION**I WILL PROSECUTE IN EVERY CASE OF MIS-
REPRESENTATION OR COLOURABLE IMITATION.**

COPYRIGHT—ORIGINAL—AND ONLY GENUINE

WHITAKER & GROSSMITH'S PURE WHITE GLYCERINE SOAP.

Richly perfumed, and guaranteed to contain the necessary quantity of GLYCERINE for effectually imparting to the SKIN the softening and healing properties for which it is so justly famed. 1s. 6d. Boxes of Three Tablets, 12s. per Dozen Boxes.

SELECT TOILET PREPARATIONS, extensively increasing in demand, which attests their excellent quality.

TOILET SOAPS. Per doz.			BOUQUETS. Per doz.			POMADES, &c. Per doz.		
Cent-Fleur (copyright)	2/6	Boxes of 3 tablets 20/	Cent-Fleur (copyright)			Cent-Fleur (copyright)	8/	12/ & 20/
Jockey Club	1/6	" 12/	Star of India	...	In Glass	Petroleum Pomade	...	12/ & 18/
Sandringham	1/6	" 12/6	White Lilac	...	Stopped	Brilliantine	...	8/
Eucalyptus Oil	1/6	" 12/	Birthday	...	or	Anglo Eau de Cologne	...	8/ & 12/
Wild Thyme (Thymol)	1/	" 8	Hawthorn	...	Sprinkling	Eucalyptus Vinegar	...	12/ & 20/
Semi-Cut Bars	1/	Bars of 6 kinds 8/6	White Violet (and 50 others)	...	Bottles.	White Cherry Tooth Paste	8/	& 12/

Trade Price Lists sent and Orders executed through Wholesale Houses, or direct from the Manufacturers,

WHITAKER & GROSSMITH, Wholesale Perfumers, 22 Silk Street, London, E.C.

NOTICE OF REMOVAL.

MESSRS. WHITAKER & GROSSMITH

Beg to inform their Friends and the Trade generally that, in order to meet the increasing requirements of their business, they have Removed from 120 Fore Street to New and more Convenient Premises—

22 SILK STREET, E.C.,

Which have been provided with Modern and Improved Machinery for Manufacturing, thus affording greater facilities for executing all orders in the best manner and with the utmost promptitude.

JULY 1, 1880.

By Her Majesty's
Royal Letters Patent
No. 4168.

W. & H. JACKSON'S
PATENT CHEQUERED PUMICE

TRADE MARK,
"FLOATING."

"FLOATING" HAND TABLET.
FOR USE IN WASHING, &c.

4D. & 6D. RETAIL.

These find a rapid sale wherever introduced, as the following will testify:—

"DEAR SIR,—Referring to the New Pumice Hand Tablets, I find they sell exceedingly well, having sold Fourteen Dozen Sixpenny Tablets in a very short time. They appear to give thorough satisfaction. I shall require another supply in a day or two.

Messrs. W. & H. JACKSON.

Yours truly, R. J. ELLIOT, Ph. D. (late ELLISON & Co.)

May be obtained from Messrs. S. Maw, Son & Thompson; Lynch & Co.; Gilbertson & Sons; and all leading Sundry Houses.

In ordering be sure to order Chequered Pumice FLOATING Hand Tablets, as there is an imitation in the Market which will not float.

Sole Proprietors—W. & H. JACKSON, 4 Cleveland Square, LIVERPOOL.
ALL RIGHTS RESERVED.

WHITE AND SOUND TEETH.

JEWSBURY AND BROWN'S ORIENTAL TOOTH PASTE.

This old-established and increasingly favourite Dentifrice has been Forty Years before the Public. It is warranted to retain its properties and keep in good condition in any climate.

The original and only genuine is manufactured solely by

JEWSBURY and BROWN,
CHEMISTS, MANCHESTER,

and is distinguishable by the Trade Mark, printed in red and green, a facsimile of which is annexed. Particular attention should be paid to this guarantee of genuineness, as numerous imitations are offered.

Sold universally by Chemists and Perfumers, at 1s. 6d. and 2s. 6d.

The Trade and Shippers supplied by the leading houses in London and elsewhere. Bills and Show Cards forwarded on receipt of address card, and directions for enclosure.



ESTABLISHED 100 YEARS.**TOILET AND FANCY SOAPS**
OF EVERY DESCRIPTION.**CHOICE PERFUMES IN BULK.**

No. 1 extra 12/ per pint of 20 ozs.
 No. 1 9/6 " "
 No. 2 8/ " "
Put up also in great variety of size, style, and price.

SOAPS.

Zinc, Sulphur, Petroleum, 6d. & 1/
 Petrolene, Juniper Tar, & 4/ & 8/
 other Medicated Soaps ... doz.
 Glycerine Jelly, 6d. and 1/
 stoppered bots., 4/ & 8/
 per doz.

T. F. BRISTOW & CO.
TOILET SOAPS & PERFUMERY.
 MANUFACTURERS.

PRICE LISTS
ON APPLICATION.**BRISTOW'S SPECIALITIES.**

Carbolic Acid Soap, In boxes 3 tblts.
 Glycerine and Carbolic Acid 1/ & 1/6
 Glycerine and Oatmeal Soap ... 8/ & 12/ per dz.
 Baby Soap for Nursery use In bxs. 4 & 12 tblts.
 (Illustrated Label) 19/ and 27/ per doz.
 Family Soap, in bxs. 4 & 12 tblts (1/ & 2/9) 8/ & 24/ "
 Cold Cream Soap, in bxs., 3 tbs. in bx (1/6 & 2/6) 12/ & 21/ "
 Stockholm Tar Soap in boxes, 3 tablets in box (1/6) 12/ "
 Pure Coal Tar Soap ... in 4d., 6d. & 8d. tblts. in 3 doz. bxs. 2, 6, 3/6, 4, 6 doz..
 Transparent Soap, in boxes 3 tablets (1/ and 1/6) 8/ & 12/ "
 Superior Lavender Soap, in boxes, 3 tablets (1/ and 1/6) 8/ & 12/ "
 White Glycerine Soap, in boxes, 3 tablets (1/6) 12/ "
 Dog Soap (Illustr. Wrapper), Carpet & Cloth Soap, Pumice Stone Soap (6d. & 1/6) ... 3/6 & 7/ doz..

5 BISHOPSGATE AVENUE, LONDON.**PULVIS JACOBI VERUS**(THE TRUE "JAMES" POWDER),
PREPARED BY*W. Hooper*

Has an acknowledged reputation as an Antimonial, and its value and efficacy is verified by a continued and increasing sale in the Indian Empire. Sold in 1 and 4-oz. Bottles (Troy), at 2/9 and 10/6; also in Packets for transmission by Post.
W. HOOPER & CO., 24 Russell Street, Covent Garden.

TRY IT!
SPANISH
 In Bottles,

Unrivalled for RESTOR-
 ING HAIR, RENEW-
 ING, CLEANSING,
 THICKENING, and
 PREVENTING the Hair

Of Messrs. Low & Haydon, 330 Strand, London; Barclay & Sons,
 95 Farringdon Street, London; of any Chemist or Hairdresser; or of
 A. P. Muddiman, Leighton Buzzard, Beds.



IT NEVER FAILS!
WASH!!
 2/6 & 5/- each.

from FALLING OFF or
 Turning Grey, instantly
 removing all Scurf or
 Dandruff, leaving the
 skin pure and healthy.

Dr. C. R. Coffin's AMERICAN DENTIFRICE.

Prepared only by WILLIAM DARLING, Chemist, Manchester.
 May be had from S. Maw, Son, & Thompson; Barclay & Sons;
 F. Newbery & Sons; Sanger & Sons; and any Wholesale
 House in London. Price 2s. per Box, and Family Jars 10s.
 each.

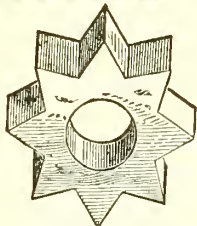
OKELL'S ORIGINAL MONA BOUQUET

Retail, 1/ 1/9, and 3/6; Wholesale, 9/ 15/, and 30/ per doz.
 This much-admired Perfume (prepared by the Widow of the late
 Joseph Okell), may be obtained from the leading Patent Medicine
 Houses, Wholesale Druggists, and Druggists' Sundry Dealers.

Applications for WHOLESALE Agencies to be made to the SOLE
 CONSIGNEE, **THOMAS WEST, Chemist, Stretford,**
Manchester.

G. F. SNOOK & SON'S

**NEW ARNICATED
 STAR
 CORN AND BUNION
 PLAISTER.**



REGISTERED.)

**OR WHITE SPREAD
 SHAPE
 CORN AND BUNION
 PLAISTER.**

They will be found to possess greater advantages over all other Plaisters hitherto produced.
 Their chief qualities depend upon their superior adhesiveness, being composed of very adhesive ingredients, and, owing to their shape, are not so liable to be drawn off with the sock or stocking.

SPECIALITIES FOR THE SEASON.

SNOOK & SON'S "INSECTO." the most effectual exter-
 minator for all kinds of insects, ground from the finest selected Dalmatian flowers, and
 guaranteed pure. 3d., 1s. 9d.; 6d., 3s. 6d. per dozen. Each box is fitted with a per-
 forated zinc top, so that it can be used as a dredger. One dozen to any Wholesale
 House in London for 24 or 48 stamps. Special quotations for large quantity.

Snook & Son's New Brighton Bath Gloves. Sponge
 Gloves are made with thumbs, and filled with Sponge; will be found the most perfect
 substitute for the Sponge yet introduced. 6s. 6d. per dozen Gloves.

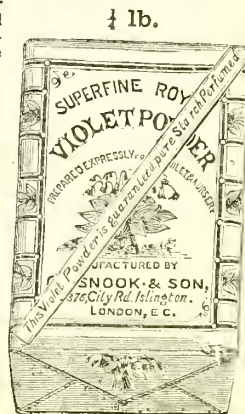
Snook & Son's Pure Starch Violet Powder, richly per-
 fumed, in handsome wrapper, as per illustration. One dozen, in a glass-top box, 1/1b.,
 30s.; 1/1b., 60s. per gross.

Snook & Son's 1d. Violet Powder, Pure Starch, each
 Packet with guarantee, in Show Boxes for the counter, as per illustration. Per gross, 5s.

Snook & Son's 1d. Pure Fuller's Earth, each Packet with
 guarantee, packed in same style as the Violet Powder. Price per gross, 4s. 3d.

Snook & Son's 3d. and 6d. Fuller's Earth, in Round Fancy
 Gold Boxes, one dozen in a box. 3d., 18s.; 6d., 36s. per gross.

Any of the above goods may be had through all Wholesale Houses.
 Price List or Samples free per post on receipt of business card.

376 CITY ROAD, LONDON, E.C.

SPONGES! SPONGES!!

R. CRESSWELL & CO.,

SPONGE MERCHANTS & IMPORTERS,
32 Red Lion Square, London;
AND AT PIRÆUS AND SMYRNA.

ESTABLISHED 1850.

In calling attention to the annexed Price List, R. C. & Co. beg to state that the strictest regularity in the assortment and quality of Sponges in each case, and the **UTMOST VALUE** for prices quoted, may be relied upon. Thirty years' experience in the Trade, together with a staff of competent Buyers (interested in the firm) on the Fisheries, enable them to offer their Customers exceptional advantages in effecting purchases.

PRICES CURRENT OF SANDED & SANDLESS SPONGES, IN ORIGINAL CASES AS IMPORTED.

HONEY-COMB SPONGES.

No.	Qty.		Pieces in case.	Price case. £ s.
1	1st	Finest selected shapes, assorted sizes ...	120 to 135	12 0
2	1st	Do. do. ...	70 „ 80	7 0
3	1st	Do. do. ...	40 „ 50	4 0
4	1st	Small selected shapes ...	250 „ 300	7 0
5	1st	Superior do. large Bath sizes	20 „ 30	7 0
6	2nd	Do. quality shapes, assorted sizes... ..	120 „ 130	8 0
7	2nd	Do. do. do. ...	70 „ 85	4 4
8	2nd	Good quality shapes, small ...	250 „ 300	3 10
9	2nd	Do. do. large Bath sizes	20 „ 30	5 0
10	3rd	Do. do. assorted sizes ...	140 „ 150	5 5
11	3rd	Do. do. do. ...	80 „ 95	3 10
12	3rd	Do. do. large Bath sizes	20 „ 30	3 0
13	4th	For Stable use, &c. ...	100 „ 120	1 5

FINE TURKEY SPONGES.

14	1st	Finest selected Cups, assorted sizes	100 to 120	18 0
15	1st	Do. do. do. ...	50 „ 65	10 0
16	1st	Do. do. Bath sizes	30 „ 40	12 0

Fine Turkey Sponges—continued.

No.	Qty.		Pieces in case.	Price case. £ s.
17	2nd	Superior Cups, assorted sizes	100 to 120	12 0
18	2nd	Do. do. ...	50 „ 65	7 0
19	2nd	Do. Bath sizes	30 „ 40	9 0
20	3rd	Fine Cups, assorted sizes	100 „ 120	9 0
21	3rd	Do. do. ...	60 „ 70	5 5
22	3rd	Do. Bath sizes ...	30 „ 40	7 0
23	1st	Turkey Solids, assorted sizes	100 „ 130	7 0
24	2nd	Do. do. ...	100 „ 120	5 10
25	1st	Flat Saddle, assorted sizes	50 „ 60	9 10
26	1st	Do. do. ...	30 „ 40	6 0
27	2nd	Do. do. ...	50 „ 60	6 5
28	2nd	Do. do. ...	30 „ 40	4 0

BROWN TURKEY SPONGES.

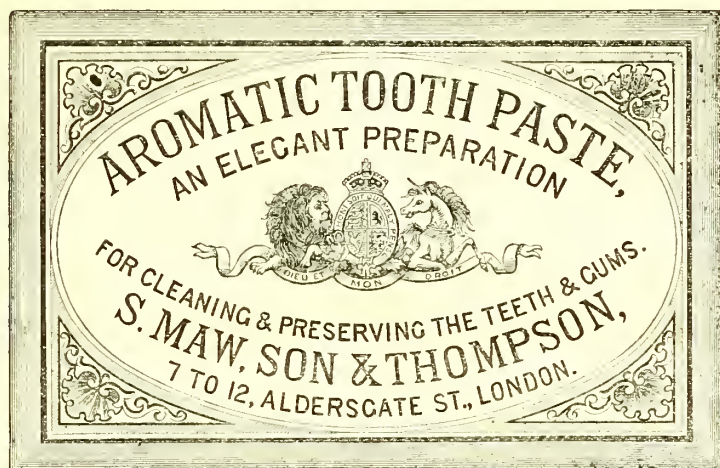
29	1st	Finest selected, assorted sizes	130 to 150	4 10
30	1st	Do. do. ...	70 „ 80	2 15
31	2nd	Superior quality, do. ...	130 „ 150	3 3
32	2nd	Do. do. ...	70 „ 80	2 0
33	3rd	Slate quality, do. ...	300 „ 400	1 1

The above may be had Sanded or Sandless, as required.

ALL COMMUNICATIONS TO BE ADDRESSED TO LONDON OFFICES.

FAC-SIMILE OF LABEL.

IN COVERED JARS.



BURNT-IN LABELS.

Price to the Trade, 12s. per dozen. Usual Discount.

WHOLESALE OF THE PROPRIETORS, AND OF THE FOLLOWING:—

Duncan, Flockhart & Co. ...	EDINBURGH.	Glasgow Apothecaries' Co. ...	GLASGOW.
Woolley, Sons & Co. ...	MANCHESTER.	Goodall, Backhouse & Co. ...	LEEDS.
Lofthouse & Saltmer ...	HULL.	Foggitt & Son ...	THIRSK.
W. H. Schieffelin & Co. ...	NEW YORK.	Frank Senior ...	SYDNEY.
Richardson & Co. ...	ST. LOUIS.	Faulding & Co. ...	ADELAIDE.
Th. Luscher	10 Rue de la Paix, Paris.	...

F. A. SARG'S SON & CO.'S

CHEMICALLY PURE GLYCERINES

AND

TOILET GLYCERINE ARTICLES.

CHEMICALLY PURE GLYCERINES.

Sarg's Double Distilled Glycerine, Chemically Pure,

30° Beaumé, in Cases of Four 56-lb. Tins each; Twenty 5-lb. Bottles, Fifty 1-lb. Bottles, and 100 ½-lb. Bottles, with Registered Label.

Sarg's Double Distilled Glycerine, Chemically Pure,

In ½-lb. and 1-lb. Bottles, should have a place in every nursery on account of its salutary action on the heads of children, relieving them from dandruff and the roughness of the scalp they are so commonly subject to.

Sarg's Distilled Glycerine, Chemically Pure, P.B.,

29° Beaumé, in Cases of Four 56-lb. Tins each.

Crude Glycerine, in Bulk.

TOILET GLYCERINE ARTICLES.

Transparent Glycerine Soap,

In registered Packets of three Tablets, 1s. Warranted to contain 33% of the purest Glycerine. Also in round Tablets, three in a Box; and in oval Tablets in paper.

Liquid Glycerine Soap,

Best preventive against chapped hands, 1s., and unrivalled for imparting softness to them, and rendering them clean and white. See Testimonials of Professor J. von Liebig, Baron; and of Professor F. Wöhler.

Scented Glycerine,

In Bottles at various prices. Either pure or diluted with water, this Glycerine is very successfully used for softening the skin, preserving the complexion, and preventing the very unpleasant roughness of the skin in cold weather.

Glycerine Cream

Is quite unequalled for imparting a fresh and healthy colour to the lips and keeping them from chapping.

Sarg's new Carbolic Glycerine Soap,

In Boxes of three Tablets, is highly recommended as a most effective disinfectant.

Sold by all Wholesale Chemists and Druggists.

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MEDAL,



PARIS, 1878.

THE

Tin-Plate Decorating Co.,

MANUFACTURERS OF THE NEW

CRYSTALLIZED TIN BOXES,

FOR TOILET AND OTHER PURPOSES.

GOLD MEDAL,



SYDNEY, 1879.

SEAMLESS DECORATED TIN BOXES,

Suitable for Blacking, Polishing Paste, Tooth Powder, Pomade, Pills, Lozenges, &c.

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For Disinfectant Powder, Baking Powder, &c., &c., &c.

Samples and Prices will be forwarded on application on receipt of full particulars.

WORKS: NEATH, SOUTH WALES.

THE UNIVERSAL TOOTHACHE SYRINGE

Retail,
6d. each.Wholesale,
4s. per dozen.

Is a great improvement upon the "DENTAL SYRINGE," as the fluid is contained in a glass bulb, which enables its contents to be seen, also prevents the liability to evaporation through long keeping or exposure.

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1 doz. mounted on a handsome Illustrated Show-Card, Retail, 6d. each; Wholesale, 3s. 6d. per doz. It is especially adapted for Export Trade, and may be safely sent to the hottest climates, as each glass tube is hermetically sealed and enclosed in a cardboard case.

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	Per lb.		Per lb.		Per lb.		Per lb.
Aqua Anethi, Concent.	4/0	Aqua Cinnam. Ver. Concent.	6/0	Aqua Fœniculi, Concent.	4/0	Aqua Pimentæ, Concent.	4/0
" Anisi, "	4/0	" Cassiæ "	4/0	" Menth Pip. "	4/0	" Rosæ "	8/0
" Camphoræ "	4/0	" Flor. Aurent. "	8/6	" Ang. Con. "	6/0	" Rosæ Virgin "	10/0
" Carui "	4/0	" Flor. Sambuci "	8/6	" Virid. "	4/0		

The above are put up in Bottles of 1lb. or 1lb. and upwards, each of which has the Inventor's Protection Label over cork. Wholesale Agents—Hearon & Co., Maw, Son, & Thompson, Lynch & Co., London; Evans, Sons & Co., Raimé, Liverpool; Mather, Woolley, Manchester; Bewley & Draper, Dublin; Glasgow Apothecaries' Co., Hatrick & Co., Glasgow; Raimé & Co., Edinburgh; Foggitt, Thirk; Goodall & Co., Leeds; Clarke, Bleasdale & Co., York; McKesson & Robbins, New York. Special terms for large quantities may be had from

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SPIRITUS RECTIFICATUS, P.B.

CHEMICALLY PURE SPIRITS OF WINE

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Also Duty Free for Exportation.

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Elegantly Labelled,

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SUPERIOR QUALITY.

MAW'S PERFUMES, in $\frac{1}{4}$ -dozen Boxes each, or assorted.

ESS. BOUQUET, FRANGIPANNI, JOCKEY CLUB,
MILLEFLEURS, RONDELETIA, SPRING FLOWERS,
STEPHANOTIS, WHITE ROSE, YLANGYLANG.

Corked	per doz.	7/6 & 12/-
Do. with Sprinklers	"	8/- & 12/6
Stoppered	"	12/-

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KNITTED SWEETS	per doz.	16/-
ORCHID FLOWERS (CATTLEYA, MAXILLARIA, STANHOPIA) each, or assorted	per doz.	16/-

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ESS. BOUQUET	per doz.	12/-
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10 per Cent. off Invoice, and 5 off Monthly Account.

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IN ROUND-SHOULDERED BOXES, HANDSOMELY LABELLED.

3s. 9d. per Dozen.

Packed in Outer Boxes of Half-a-Dozen.

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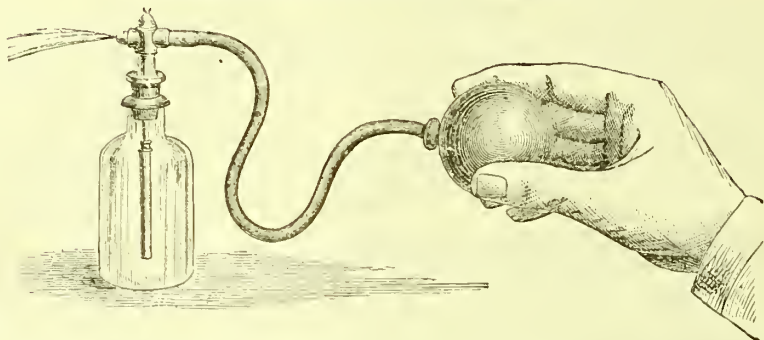
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WITH REGISTERED TELESCOPE TUBE,
For Perfuming Apartments or Diffusing Disinfectants.

WITH ELASTIC TUBE.

NICKEL
PLATED,
32s.
PER DOZ.

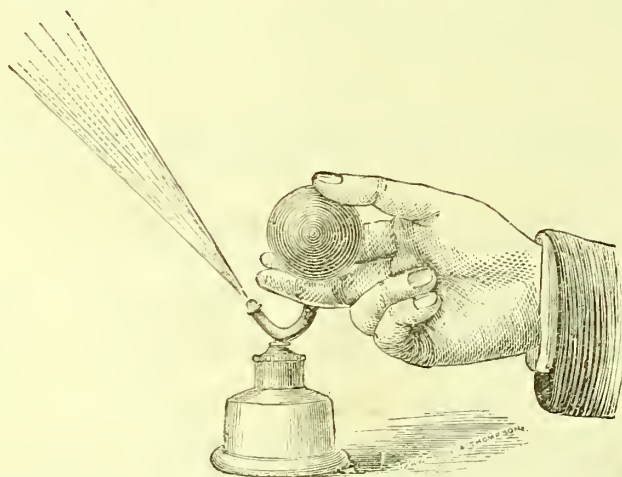


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Portable, without Elastic Tube, 27s., Silver Plated 32s. per doz.

THE CHATSWORTH SPRAY.

NICKEL
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PER DOZ.



SILVER
PLATED,
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With Handsome Cut Bottles, Nickel Plated, 43s.,
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NESTLE'S MILK FOOD.

FOR

INFANTS, CHILDREN, AND INVALIDS.

WHOLESALE DEPOT:

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NESTLE'S MILK FOOD is prepared at Vevey, Switzerland, from the pure milk of Alpine-fed cows, the finest wheaten flour and sugar, combined in exact proportions to imitate closely the natural food for infants. It is thoroughly cooked, and reduced to a fine powder, perfectly soluble in water, requires only the simple addition of water to prepare it for use—in this respect having the advantage over all other foods.

NESTLE'S MILK FOOD is highly recommended by the best medical authorities in all parts of the globe as a perfect diet. Nestle's is the original and genuine Milk Food or Powder. The extensive demand for this Food, its well-known superiority and universal recognition by the medical profession, has produced the inevitable imitations. The Trade and the Public are hereby cautioned. Nestle's Milk Food has stood the test of years. Take no other under any pretence whatever.



NESTLE'S MILK FOOD is put up in Tins, packed in lined cases when ordered specially for the Export Trade. Is highly concentrated, and in a perfectly dry state. Will keep good in any climate.

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The simplicity of its preparation for use;

Its freshness in warm climates, where cow's milk soon becomes tainted.

Our Wholesale Agents at any port will pack and ship the Food to or for any part of the world.

Foreign and Colonial Importers should obtain their supplies from London, thus ensuring Purity and Perfect Freshness.

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It has **STOOD THE TEST**, and is being constantly sent to **INDIA, CHINA, AUSTRALIA** and the **CAPE** by the **GREAT STEAMSHIP COMPANIES**, and ordered in Large Quantities by **THE ADMIRALTY, METROPOLITAN ASYLUMS BOARD, &c.**

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Prepared expressly for Oakey's Patent India-Rubber Knife Boards, Buff Leather Boards, and all the Patent Knife Cleaning Machines. Sold in Packets 3d. each; and Tins, with perforated Tops to prevent waste, 6d., 1s., 2s. 6d., and 4s. each.

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Black,

For all kinds of
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SOLD BY ALL CHEMISTS. GROCERS. IRONMONGERS, ETC.

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This well-known Soap—originally recommended by Professor ERASMUS WILSON—IS STILL THE BEST FOR PRODUCING A CLEAR AND HEALTHY SKIN. It is a pure unsophisticated Soap, without the addition of either Scent or Colouring Matter.

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H. BESSEMER'S GOLD PAINT,

RETAIL PRICES:—

Small Bottles of Gold with Liquid	1s. 6d.
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To be obtained of all Chemists, Artists' Colourmen, and Druggists' Sundriesmen.

NEW 1/6 & 2/6 PACKETS.

CONTENTS:—1 Bottle Gold Powder, 1 Bottle Mixing Liquid, 1 Mixing Bowl, 1 Brush, in Cardboard Box.

Where the Bowl and Brush are not required, the usual 1/6 Packet should be purchased, as it contains a large quantity of both Gold and Liquid.

A COPPER AND SILVER PAINT, AT THE SAME PRICES, AND YIELDING EQUALLY GOOD RESULTS, CAN BE OBTAINED.

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For more than a Quarter of a Century this Powder has sustained an unrivalled reputation throughout the United Kingdom and the Colonies as the BEST and SAFEST article for Cleaning.

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GODDARD'S FURNITURE CREAM,

Sold by all Patent Medicine Houses and Wholesale Druggists,

Manufactured by J. GODDARD, Station St., Leicester.

FOR CLEANING PLATE.

BRADLEY & BOURDAS'S
ALBATHUM or WHITE ROUGE,
For Cleaning Gold, Silver, and Plated Goods.

Since its introduction as a substitute for the ordinary Rouge, a quarter of a century ago, the sale has amazingly increased both at home and abroad. A trial is only needed to prove its superiority over other plate powders in use. Sold in Boxes at 1s. and 2s.; Tins, 6s. 7 Pont Street, Belgrave Square, and 48 Belgrave Road, London, S.W.

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IMPORTERS OF

Petroleum, Benzoline, Gasoline, Turpentine,

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TALLOW, PITCH, TAR, ROSIN, &c.

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WHITE LEAD, PAINTS,

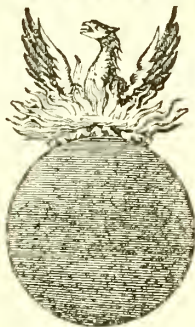
OF ALL

COLOURS, AND VARNISHES

KINDS.

Soft Soap, Greases, Linseed
PAINTS IN TINS

TRADE
Ball denotes



Meal, and Crushed Linseed.
MIXED FOR USE.

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All Colours in 1, 2, 4, and 7 lbs.

VARNISHES OF ALL SORTS IN TINS OF ALL SIZES.

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{ 1 Bottle Gold Powder	} 12s. per dozen sets. Six sets on a card, or each set in card box.
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{ 1 Brush	
{ 1 Bottle Gold Paint	} 10s. 6d. per doz. sets. Six sets on a card, or each set in card box.
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For regilding picture and glass frames.
For gilding lamp stands and gas-fittings.
For renewing ormolu ornaments.
For illuminating on paper, silk, or leather.
For artistic cabinet work.
And for a thousand useful and domestic purposes.

FOR ALL WHO COURT THE ELEGANT WITH THE USEFUL.

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In Fancy boxes, with Brush and Chamois complete, at 2s., 2s. 6d., and
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IMPROVED NON-MERCURIAL and ROUGE PLATE POWDERS
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DETERGENT POWDERS (used dry), for immediately removing tarnish
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The very best Value of either for ONE SHILLING. Sold Everywhere.
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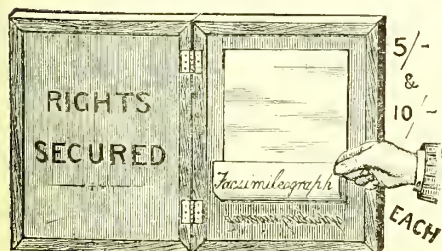
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AS A PROOF OF SUCCESS, the most costly inventions of a similar character are now discarded
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"Yours, &c.,

"R. D. EDWARDS."

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Samples supplied at a third off above Prices.

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THE ORIGINAL AND ONLY GENUINE.

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CAUTION!—As a natural result numerous imitations are springing up. Note that all our bottles are in blue wrapped boxes, and bear above title (registered) impressed in the glass.

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ROBARE'S AUREOLINE

Produces, by two or three applications, the beautiful golden colour so much admired.

WARRANTED PERFECTLY HARMLESS.

Price, 5s. 6d. and 10s. 6d., of all Perfumers and Chemists.

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For Removing Tartar and Whitening the Teeth, without injuring the Enamel. Sold in Pots, at 6d. and 1s. each.

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QUININE, CANTHARIDINE, & ROSEMARY HAIR CREAM

(WITH GREASE). Restores the Hair if weak or falling off.

Price 3d., 1s. 6d. and 3s. 6d. per bottle.

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QUININE, CANTHARIDINE, & ROSEMARY HAIR WASH

Similar to the above (without grease). Price 1s. 6d. and 3s. 6d. per bottle.

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Never fails. 1s. per pot.

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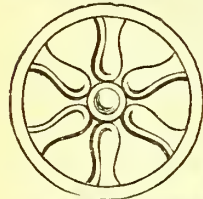
ROUND AND OVAL CHIP AND WILLOW BOXES,

Of any Size, in the very Best Quality that can possibly be made.

Guaranteed far better and cheaper than any other make, and WARRANTED TO STAND ALL CLIMATES. LARGE STOCK KEPT IN LONDON.

Every large buyer of these goods should compare my samples and prices before ordering elsewhere.

Please observe my REGISTERED TRADE MARK, and see that every parcel bears the same on the LABEL AS GUARANTEE, as for obvious reasons many bad foreign productions are being brought into the market.



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BEST GERMAN SASH TOOLS,

Grey and Red String Tied, of Excellent Quality, at very Low Prices.

Thermometers, Hydrometers, and Chemical Glass Apparatus in large variety.

Illustrated Price Lists will be sent on application.

AWARDS:
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AWARDS:
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IN LIQUID AND POWDER.

Packed in 1-lb., ½-lb., ¼-lb., and 2-oz. Boxes, ½-pint 6d. Bottles, and bulk.

Specimen Boards and Circulars supplied when ordered.

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And of all Patent Medicine Warehousemen. Write for New Price Lists of Oil and Spirit Varnishes, Colours, Paints, &c.

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JAMES EWEN & SONS are induced to give further publicity to these articles, the continued demand by all who have used them being satisfactory proof "that where purity of basis" in ointments, &c., is required, they are most desirable.

By their method of purifying, the fats are not chemically altered, but simply divested of all particles tending to decomposition, they are consequently available for the most delicate preparations.

Adeps. Benz. B. P. and Pharm. Lard (vide P. J. Vol. I., No. 8). Direct, "for Cash only," from

JAMES EWEN & SONS' CLARIFIED FAT WORKS,
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Or through any of the Wholesale Houses, with their usual credit, at a small advance.

CAUTION.—See that each package bears their label with name and weight.

EVERY CHEMIST HIS OWN PILL-COATER.

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A PERFECT PILL-COATER

COMBINING THREE EXCELLENT QUALITIES, VIZ.:

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CORTIE'S HANDY PILL-COATER,

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TINNED COPPER,

PRICE 5/- EACH,

Will Coat from a Dozen Pills upwards (either Pearl or Sugar Coating) equal to the most expensive machine.

The art of Pill-coating is, as yet, but imperfectly understood by Chemists generally. A simple rotary motion in a thin solution, sparingly used, is all that is required, with finely-powdered French chalk for pearl coating, and powdered starch for sugar coating. A little practice will soon overcome all difficulties.

In case too much solution has been added, a little heat from a spirit lamp or gas jet will easily dispel the superfluous moisture. The pills should be very round, hard, and dry. Care should be taken to use only the best and finest powders; the best solution is half a dram of syrup and mucilage in an ounce of water. Gums or resins are quite unnecessary for well made pills.

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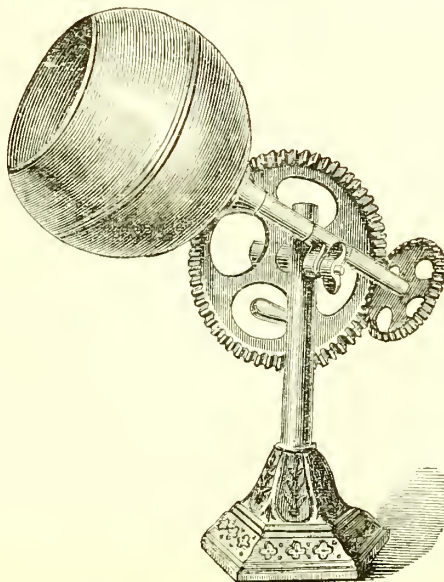
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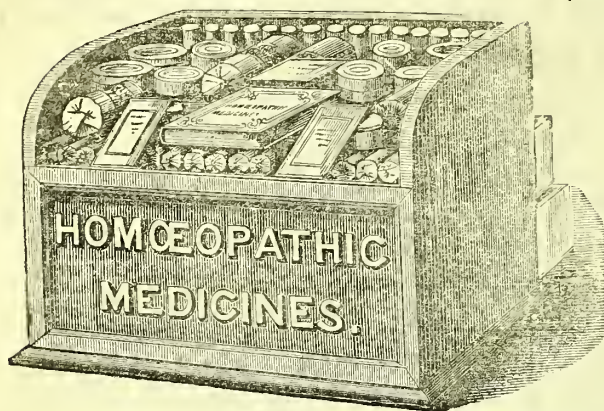
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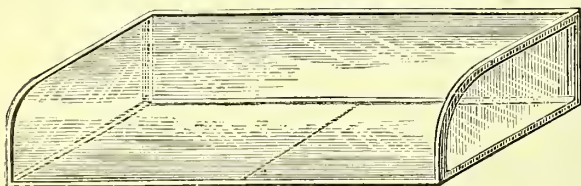
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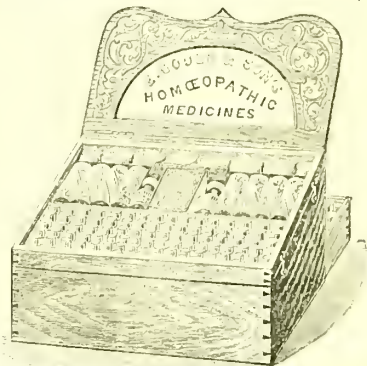
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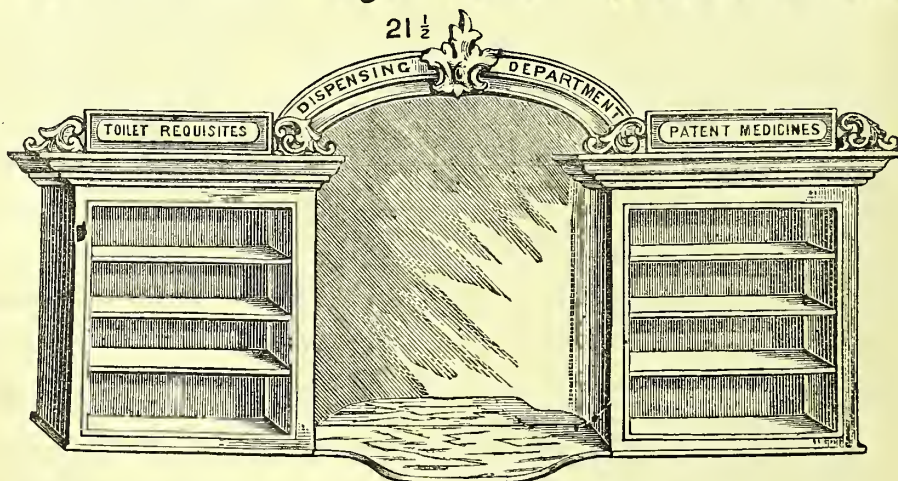
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FIG. 1.

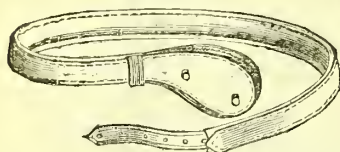


FIG. 4.

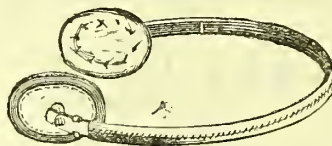
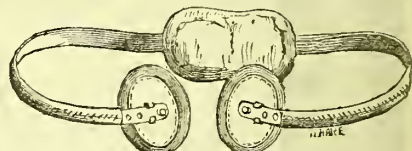


FIG. 5.



TRUSSES.

Circular Trusses, single, as Fig. 1, basile and chamois or basile and moleskin	per doz.	£1 1 0
Circular Trusses, double, basile and chamois or basile and moleskin	per doz.	1 14 0
" " with extending backs	"	2 14 0
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" " double, Fig. 5	"	3 0 0
Moc-Main Lever, single	each	0 8 0
" " double	"	0 13 6
Coles's Expired Patent, single	"	0 5 6
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" " " double	"	0 7 0

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No. 1. Cotton Bags and tape under-strings	per doz.	0 8 0
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3. Silk Bags and tape under-strings	"	1 1 0
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8. " " under-strings to button	"	1 4 0

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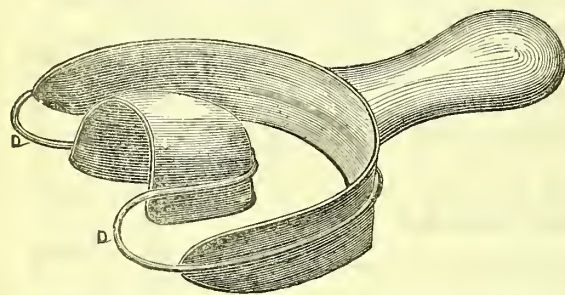


Fig. 1. The Tray empty.

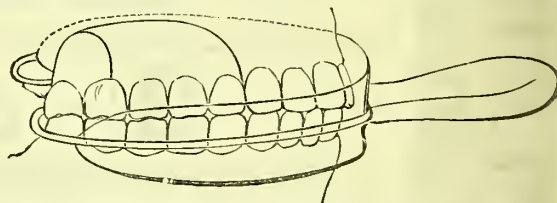


Fig. 2. The Tray in use.

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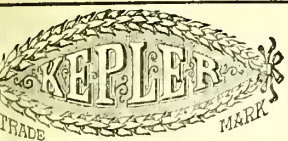
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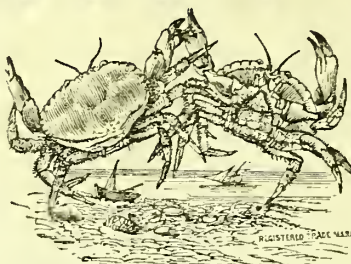
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The seventeenth session of the British Pharmaceutical Conference was held at Swansea on August 24 and 25. The attendance was only a little more than half that of the average of the past 10 years. Mr. W. Southall, of Birmingham, presided, and some useful papers were read. The next meeting will be held at York, on August 30, 1881, under the presidency of Mr. R. Reynolds, of Leeds.

Among the events of the Swansea Conference was the presentation of a testimonial to Professor Attfield, in recognition of the 17 years of labour which he has given to the organisation of the Association. The testimonial consisted

of 500 volumes of general literature, accompanied by an address. Mr. Carteighe succeeds Professor Attfield in the honorary general secretaryship of the Conference.

The British Association meeting at Swansea was also a small one. Several of the excursions which had been arranged had to be abandoned on account of the small number of applicants for tickets. Professor Ramsay, of geological renown, was president, and delivered an address, in which he aimed to show the uniformity of the causes of the variations in the earth's crust throughout the period of geological history. Dr. Joseph H. Gilbert, as president of the chemical section, discussed the application of chemistry to agriculture. Sir John Lubbock was chosen as the next president.

Students will find in the following pages a good deal of information respecting pharmaceutical, medical, and scientific education generally. Details of many of the schools for technical education of this character are also to be found among our advertisements.

For some time past various chemical manufacturers in the neighbourhood of London have suffered considerable losses through robbery. Evidence of a conspiracy among certain workmen employed at two firms has been lately brought forward, and six or seven men have been convicted at the Old Bailey, but it is by no means certain that the serpent has yet been more than scotched.

There are no serious alterations in the chemical and drug markets, but trade is undoubtedly more flourishing than it has been for years, especially among the manufacturing chemists. Our Smyrna correspondent gives in this issue an interesting account of the cultivation of the opium poppy in Asia Minor. We have no telegram from him, which indicates that no change of importance has taken place in the market there.

There was no meeting of the Pharmaceutical Council this month.

Our Smyrna correspondent informs us that the Chio islanders ask exorbitant prices for their turpentine this year, they having discovered that a special medical demand has sprung up.

Buchanan, the diploma-monger of Philadelphia, nearly escaped the grip of Justice by a clever dive from a river steamer. He has, however, been tracked and re-arrested.

The French journals note the death of M. Charles Torchon, of Paris, the principal in the important house for pharmaceutical specialties known so long as "Maison Frère." M. Torchon was the proprietor of Belloc's Charcoal, Clertan's Perles, Goudron de Guyot, and other specialties not unknown in England. He was one of the largest of French advertisers, and was generally regarded as the leviathan of the French specialty trade. He could have been scarcely 40 years of age.

We are compelled to hold over several articles and reviews, in type, in consequence of the coincidence of our Educational Number with our report of the British Pharmaceutical Conference.

The Chemists and Druggists' Diary for 1881 is now in course of preparation. As a special feature, it will contain matter practically dealing with the patent medicine difficulty. As this work is presented free to all our subscribers, and largely sold to others, it is a medium of exceptional value to advertisers, whose instructions we invite.

CORNER FOR STUDENTS.

CONDUCTED BY RICHARD J. MOSS, F.C.S.

ANOTHER well-known mineral will form the subject of the next exercise in qualitative analysis. The substance is to be submitted to a thorough systematic examination, with the view of detecting all impurities as well as the essential constituents. The reports sent in by students should contain a complete account of the work done, and of the results obtained; the name of the substance is to be ascertained, and a list given of the impurities detected. Students are requested to mention any difficulties they may experience in the analysis.

Applications for specimens will be received up to the 20th inst., and the specimens will be forwarded on the 25th.

Students' reports will be received up to October 15.

CELESTINE.

Strontium sulphate, or celestine, was the subject of our last exercise; it contained as impurity traces of iron, calcium, barium, lead, and some earthy matter, including silica and aluminium.

Strontium generally occurs in nature in the form of sulphate. The metal and its salts have but little interest save to the chemist, as their applications are extremely limited. Incandescent strontium vapour exhibits a magnificent crimson colour, for which reason salts of strontium are employed by pyrotechnists to produce "red fire": the preparation usually employed is a mixture of the nitrate with sulphur, potassium chlorate, and carbon.

In its chemical properties strontium is intermediate between barium and calcium. Many of the properties of the three metals and of their salts appear to vary directly, as the atomic weights of the metals. In density, for example, this peculiarity of the salts is very well marked, and a corresponding variation in solubility is also conspicuous. Barium sulphate, which has a molecular weight of 233, may be taken as typical of a salt insoluble in water. Strontium sulphate, molecular weight 183, is sparingly soluble, while calcium sulphate, molecular weight 136, is soluble in about 500 parts of water. Proceeding a little further in the same direction, and including magnesium with this group of elements, we have the sulphate with the low molecular weight of 120, readily soluble in water. The student will find it important to observe these and corresponding gradations in the properties of the different groups of elements and their compounds.

Celestine was selected for an exercise with the view of illustrating the necessity for submitting some substances to special treatment before a solution can be obtained. The best way of proceeding was to fuse the mineral with about four times its weight of a mixture of sodium and potassium carbonate. Either of the carbonates might be employed separately, but a mixture of the two is very much more easily fused. After fusion, the mass contains the earth metals as carbonates, and the alkali metals as sulphates mixed with some undecomposed carbonate. Some of our correspondents treated the fused mass with hydrochloric acid, which of course dissolved the strontium carbonate in the presence of sodium sulphate, so that strontium sulphate was again produced. The proper course is to treat the fused mass with water, and when it is completely disintegrated filter and wash the insoluble portion until the washings fail to give a precipitate with barium chloride. We have now

a solution which is to be examined for the acid radicles, including silicic acid, and a solid which is to be examined for the metals. Some students did not thoroughly wash the insoluble portion before proceeding to dissolve it in hydrochloric acid, consequently they failed to obtain a clear solution, because some sodium sulphate which adhered to the filter and to the residue produced a fine precipitate of insoluble sulphate not easily removed by filtration. This neglect would cause the trace of barium that was present to escape detection, as it would be the first to be precipitated by the adhering sulphate, and if the washing was very imperfectly performed, as it certainly was in some cases, not a trace of barium could pass into the hydrochloric acid solution. To properly observe the reaction of the mixed chlorides with calcium sulphate it is desirable that the solution should be moderately dilute, else strontium may appear to give an immediate precipitate. With a little practice the results of this reaction are easily interpreted, but unless the student has previously studied the reactions experimentally he cannot expect much accuracy in his conclusions.

PRIZES.

The First Prize for the best analysis has been awarded to JOHN RICHARD D. BARFOOT, 22 Beetwell Street, Chesterfield.

The Second Prize has been awarded to E. H. GRIMWADE, St. James's Lodge, Croydon.

Marks Awarded for Analyses.

John Richd. D. Barfoot (1st prize)	95
E. H. Grimwade (2nd prize)	90
Xema	87
A. B., Newcastle-on-Tyne	85
A. J. Evans.. .. .	83
F. B. W.	80
A. B. (Bishop Auckland)	75
H. C. H.	75
J. E. Johnson	70
Silicate	70
Struggler	0
Ferrum	0
C. O. Rainer	0
L. S.	0

TO CORRESPONDENTS.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as second prize.

. All Communications should include the names and addresses of the writers.

A. J. Evans.—You boiled the solution obtained from the fused mass with hydrochloric and nitric acids "to destroy organic matter"—a precaution that was scarcely necessary, considering the high temperature to which the mass had just been exposed.

A. B. (Bishop Auckland).—For the detection of calcium in the presence of strontium one must trust mainly to the different solubility of the sulphates. From a dilute solution sulphuric acid precipitates, after some time, all but a minute trace of strontium, while calcium remains in solution, and may be precipitated by ammonium oxalate, after adding ammonia.

H. C. H.—We could not undertake to send you an additional supply of any of the specimens submitted for analysis; you ought to retain a portion for reference. You could procure specimens for practice from any of the dealers in chemicals.

J. E. Johnson.—Your difficulties are such as can only be overcome by practice. Prepare a solution of barium, strontium, and calcium chlorides, and study experimentally the detection and separation of the metals.

Silicate.—The flame colouration of calcium bears little resemblance to that of strontium; the latter might, however, be mistaken for that of lithium without the aid of the spectroscope.

Struggler.—The conclusion that silica was present in quantity because an undissolved mass floated in the bead of microcosmic salt was fatal to our analysis, as all through you regarded the insoluble sulphate as silica, which, by the way, it does not resemble in the slightest degree. Make an analysis of any silicate, say felspar, and you will find the separated silica is very different from what you suppose.

L. S.—In your preliminary examination you omitted the very simple test of heating a fragment in the blowpipe flame. The crimson colouration at once showed that strontium was the chief element to be dealt with.

Ferrum.—You can scarcely call your few tests an analysis. Calc spar is the common name for native crystallised calcium carbonate. We are charitable enough to suppose that you are not aware of this fact, as it is credible that you could have taken strontium sulphate for calcium carbonate. The white precipitate caused by sulphuretted hydrogen consisted of sulphur, the gas being decomposed by the nitric acid in solution.

C. O. R.—The fumes that you observed on heating the substance with sulphuric acid were due to the volatilisation of some of the sulphuric acid. You heated the mixture too strongly.

Old Tom.—It is extremely improbable that you received in May a package containing a different substance from that sent to the other students at the same time. At any rate, it is a matter of positive certainty that a package containing pyrolusite was put in the envelope addressed to you.

Provincial Reports.

EDINBURGH.

CRICKET.—Leith Rangers (Raimes, Manshards & Co.) v. Wickwick (Duncan, Flockhart & Co.).—This match was played in the park of the Rangers at Bonnington on Saturday, September 4. As will be seen by the subjoined score the visitors met with a rather severe beating :—

Pickwick.

P. Menzies, c Blyth, b Watson ..	5	b Watson ..	0
C. Henry, c Robertson, b Watson ..	1	c Dalrymple, b Watson ..	9
T. Watson, c Robertson, b Laidlaw ..	2	not out ..	2
T. Harvey, c Laidlaw, b Laidlaw ..	2	run out ..	17
J. Dick, c Dalrymple, b Watson ..	1	b Watson ..	4
J. Lamb, st and b Watson ..	0	b w, b Watson ..	0
— Milton, run out ..	3	b Blyth ..	0
J. Foole, run out ..	0	b Watson ..	0
A. Duncan, b Robertson ..	1	b Watson ..	0
J. Macdonald, not out ..	10	c Dalrymple, b Watson ..	0
T. Sims, c Watson, b Watson ..	1	c Dalrymple, b Watson ..	3
Extras	8	Extras ..	5
	34		40

Rangers.

T. Dalrymple, c Sims, b Lamb ..	2	c Menzies, b Henry ..	5
J. Inglis, b Lamb ..	1	b Lamb ..	4
J. Watson, c Duncan, b Lamb ..	3	not out ..	3
T. Robertson, c Milton, b Menzies ..	13		
S. Sutherland, b Menzies ..	6		
D. Laidlaw, c Menzies, b Lamb ..	0	b w, b Lamb ..	7
R. Blyth, b Lamb ..	3		
W. Laidlaw, b Lamb ..	0		
A. Robertson, b Lamb ..	26		
A. Riddell, b Lamb ..	0		
D. Laidlaw, not out ..	3		
Extras	11	Extras ..	1
	68		20

ST. HELENS.

THE RETAILING OF PATENT MEDICINES.—At a recent meeting of the St. Helens Chemists' Association. Mr. F. A. Fox, the secretary, read a paper upon the present state of the trade in proprietary medicines and articles of a medicinal character. Having defined what patent medicines were, and described the method in which they were introduced to the public, mainly through the medium of newspaper advertisements on the one part and the exhibition of show-cards and distribution of handbills on the other, Mr. Fox pointed out that up to a recent date chemists principally sold those medicines; but now grocers and other traders offered them to the public at reduced prices, with the intention, no doubt, of stimulating the sale of their other commodities. He did not dispute their legal right to do this, but he disputed their moral right to reap the harvest the

seeds of which had been sown by the chemists, by persons who had never passed any pharmaceutical examinations, and were under none of the restrictions and responsibilities to which chemists were subject. As a remedy for this anomaly he suggested united action on the part of chemists and druggists throughout the kingdom, and that an acting committee be formed to draw up a representation to the wholesale druggists and patent medicine dealers that they should not supply patent medicines to anyone not on the pharmaceutical register; and he thought there were few, if any, wholesale druggists and patent medicine dealers who would refuse to accede to such a representation if they were given to understand that by refusing they would forfeit the patronage of all registered chemists and druggists. As an alternative scheme he proposed that they should analyse patent medicines, prepare them, and offer them to the public at a cheaper rate than that at which the grocers sold them, although keeping patent medicines in stock, never allowing an opportunity to pass when they could recommend their own preparations.

Mr. Thomas Sherlock read a paper in reply to these proposals, and said that with regard to the first plan he doubted whether they could get the trade to combine for any purpose. Formerly there were comparatively few patent medicines in regular demand, and these were supplied by a few well-known and old-established firms to druggists alone; but now nearly all the most popular and most extensively advertised patents were sent out, not by old-established and regular houses of business, who had both connections and characters to keep up, but by enterprising Yankee speculators, who came over here and ran a specialty or a group of specialties, generally after they had exhausted the sale in the United States. Those people had simply one object in view, namely, to sell as much as possible of their respective concoctions, and they did not care two straws for English druggists, or, indeed, for anybody, in a business sense, but themselves. The more people who sell their goods the better for them. So long as these patents were extensively advertised, some people would want to try them, and they must keep them, if only to humour customers. They had this advantage over the grocer, who knew nothing about them except the price—that nine out of ten would go to the druggist in order to ascertain whether they would do them good, and they could tell them that if they did not do them good, they could provide something else that would. This pleased the customer, and often led to the sale of something else which carried a fair profit. He also referred to a number of foreign patents advertised in the medical journals, in order to get the doctors to prescribe them, and expressed his opinion that the first suggestion of Mr. Fox was not practicable in the present state of the trade. With regard to the second suggestion, he said there were two good reasons why every chemist should, as far as possible, prepare his own editions of all the popular proprietary medicines, one being that he could always sell them at a lower price than grocers and others possibly could, and still derive a good profit; the other being that the practice kept him well up in the details of the trade, and in the nature, properties, and cost of the drugs he used, the cost of advertising doubling, and even trebling, the real value of the patent medicines. He described the facility with which the ingredients of patent medicines—the analysis of which was in many cases rather a good joke—could be ascertained, and, in conclusion, said he was convinced that the true method of competing with grocers and general dealers was for the regular druggists to go into the competition with spirit, and clear them off the ground; and they could do that if they would.

PROFIT AND PRINCIPLE.—Straws, says the *Homoeopathic Review*, show which way the wind blows. The straws observed by the *Review* are two significantly-worded advertisements which had appeared in a recent number of the *Lancet*. Both referred to practices for sale. One advertiser, describing the necessary qualifications of the purchaser, says, "he must be liberal minded and have no scruples about medical systems." The *nom de plume* he takes is "Eclectic." The second, who assumes the same designation, describes his practice as one "established five years on Professor Ringer's system!"

The British Pharmaceutical Conference.

THE seventeenth annual meeting of this Association was opened at Swansea on August 24 in the theatre of the Royal Institution of that town. About 50 members were present at the opening, and that average was fairly maintained to the end. The President (Mr. Wm. Southall, F.L.S., Birmingham) opened the proceedings at 10.30 A.M.

Mr. N. M. GROSE, on behalf of the local committee, offered a few kindly words of welcome to the visitors.

Professor ATTFIELD read a list of delegates appointed to the meeting by the Pharmaceutical Society and by several provincial societies.

The PRESIDENT said that a distinguished gentleman from the other side of the water was present, Professor Maisch, of Philadelphia, whose name was very familiar to all present, and whose well-known work, that of which he was at least part author, Stillé and Maisch's "Dispensatory," was already a household name among many English druggists.

Professor Maisch's name was greeted with cordial applause, which he briefly acknowledged, expressing the pleasure he had in being present and his great regret that previous engagements made for the other side of the Atlantic would limit his stay at the meeting to a few hours.

THE REPORT OF THE EXECUTIVE COMMITTEE

Was read by the Assistant-Secretary (Dr. Senier).

The report directed attention to the discussions which the Executive Committee had had with respect to the system of holding the annual meetings coincidentally, as regards time and place, with the meetings of the British Association. On the one hand, it was shown that the simultaneous occurrence of the meetings occasioned certain inconveniences respecting organisation, hotel accommodation, &c.; but, on the other hand, the advantage to some members of being able to attend both meetings, and the benefit of whatever local scientific enthusiasm was aroused, were felt to outbalance the disadvantages, and the Committee had, therefore, concluded not to make any immediate alteration in the system.

The Committee had decided to issue to its members a general index of its Year-books and transactions.

Eighty-six members had been added to the Conference since last year. Only one application for a grant for pharmaceutical investigation had been received, and the Committee hinted that the funds of the Conference were accumulating rather inconveniently.

The Committee had the painful duty of reporting the death of Mr. W. W. Stoddart, and recorded their appreciation of his great help, not only when he was President, but in the numerous papers he contributed to the Conference. They also announced with great regret the retirement of Professor Attfield from the senior general Secretaryship. The distinguished position which the British Pharmaceutical Conference had achieved was largely due to the ability and energy of Professor Attfield. It was hoped that the members would co-operate so as to render this loss as little disastrous as possible.

The financial statement was read by Professor Attfield. It showed an income for the year of 954*l.*, including 800*l.* as members' subscriptions, the balance being advertisements in and sales of the Year-book. The expenses connected with the Year-book had been 662*l.*, and the rest of the general expenses left a surplus of income over expenditure of 150*l.* The treasurer's account showed the sum of 520*l.* 7*s.* 5*d.* as the assets of the Conference, besides 350*l.* to the credit of the Bell and Hills Library Fund.

The reports were adopted.

THE LATE MR. STODDART.

Mr. REYNOLDS moved, and Mr. BRADY seconded, the following resolution, which was unanimously carried.

That the Conference records its deep regret at the removal by death of Mr. W. W. Stoddart, of Bristol, who was one of its earliest supporters. Mr. Stoddart's sound and extensive knowledge of pharmacy, and his devotion to pharmaceutical research, had long been highly valued by his professional brethren, and were formally

recognised by his election to the post of President of the Conference during the years 1870 and 1871. Mr. Stoddart performed the duties of the office with great ability, and his genial and kindly disposition and readiness to give countenance and advice to younger inquirers secured for him the warm personal esteem of his fellow-members.

Also—

That the foregoing resolution be entered upon the minutes, and that a copy be forwarded to Mrs. Stoddart, with the assurance of the deep sympathy of the meeting with herself and family under the great bereavement.

THE PRESIDENT'S ADDRESS.

When asked to accept the office of President of the Conference for the present year, I naturally hesitated, remembering the distinguished names and services to pharmacy those who have hitherto occupied the chair. I felt that was a position that required qualifications I could hardly aspire to. I decided, however, that I ought not to refuse such an honourable office, and therefore appear before you to-day to deliver the customary address.

In speaking of my predecessors, my first thought is of the loss the Conference has met with since our last meeting—the removal by death of our excellent friend, Mr. Stoddart, who filled the chair in the years 1870 and 1871. We sorely miss the genial presence and bright intellectual power of one who for so many years took an active part in our deliberations, and to whom no small portion of the success of our meetings is due.

My next thought has reference to the place of our meeting, and I have the pleasure for the first time of giving the right hand of fellowship to our brethren of the Principality on their own soil. There is no political boundary between England and Wales, simply one of race, therefore any emulation between us can only be the highly honourable one of progress, and that the Cymry are well represented in the practice of pharmacy, both in their own land and in English pharmacies, is an indisputable fact.

In making the very difficult choice of a subject upon which to address you, I had to choose between the abundant past and the limitless present, between the technical portions of our profession and the results of science which bear upon and are connected with it. The subjective view of pharmacy has recently been most ably laid before us. Pharmaceutical education is very much to the front just now, but I leave its elucidation in the very competent hands that are identified with it. Practical pharmacy and the materia medica of the present are dealt with in the Year-book. I therefore came to the conclusion that the past of pharmacy would still afford abundant material to work upon, and that I might present to you a few phases of its history that would still possess something of novelty and interest.

The first phase in the history of pharmacy that I wish to bring before you is that which existed in Italy about the time of the Christian era, and a description of it is to be found in the works of Roman authors.

This was a period of high intellectual cultivation, and amongst the literature of the Augustan age that has descended to us are the works, not only of poets, orators, and historians, but also of physicians and naturalists.

Anterior to this time Greece had led the van in medicine as in science and philosophy, and the names amongst physicians of the somewhat mythical Æsculapius and his descendants the Asclepiads, amongst whom was Hippocrates, will occur to us as having with others laid the foundations of medical science. Medicine then formed a part of philosophy. Pythagoras, for example, wrote upon it, and attempted a history of its rise and progress would of course go out of place here. Anatomy and physiology had made considerable progress. Aristotle had written his *History of Animals*, materials for which were provided at an enormous cost by the orders of Alexander the Great, and the great School of Alexandria was founded, where anatomy was studied, illustrated by dissection of the human body. At Alexandria laboured Theophrastus, pupil of Aristotle, who founded the science of botany and also wrote on materia medica. Aristotle himself also wrote on plants and pharmacy. With the decay of the School of Alexandria learning began to shift westward. Asclepiades of Bithynia

noted physician, whose works have perished, appears to have migrated to Rome about 90 B.C. About one hundred years after him flourished three men who have left their mark upon medical science: Celsus, a physician of Rome; Hygieus, whose great work on Natural History was a collection of things credible and incredible, but was stored with information respecting materia medica and on medical subjects in general; and Dioscorides, whose renowned work on Materia Medica and Botany held its position in the first rank of authority for 1,600 years. Dioscorides is said to have been a physician to Antony and Cleopatra, but it does not appear to be quite certain when he lived. Pliny quoted from him largely, but he does not give his name, as he does those of a multitude of authors whose works he quotes. Galen, whose name will be afterwards referred to, and who was a brilliant Greek physician, died some two hundred years after.

The name of Celsus is one we all know by sight very well; it is especially familiar to the medical profession. Speaking as a pharmacist, pharmacists in general are, I believe, not much acquainted with his writings. Celsus wrote "Eight books on Medicine," and his works are translated into English, and there are at least two translations of the first four books, one of them by Dr. Steggall, a name familiar to earlier students at Bloomsbury Square. From this I judge that our medical friends devote their energies mainly to these four books, possibly to the neglect of the others, and as the book relating to pharmacy is the fifth I feel less objection in taking it as the text of the first part of my observations.

In the time of Celsus, who was a friend of Horace and of Virgil, and who is alluded to by both writers, luxury prevailed at Rome to a great extent. Horace makes some one say:—

By Jove, I wonder not that folks should eat
At one delicious meal a whole estate.*

Civilisation or what not produced luxury, luxury disease, and disease required physicians, and physicians needed drugs. One of the moralists of the present day tell us that our civilisation approaches very near to the gilded heathenism of the Romans, by which a progression backwards is evidently indicated; but however this may be it is quite certain that many things were done at Rome that have also become the custom of these highly civilised and modern times. For instance:—

By my physician's learned advice I fly
From Baiae's waters.*

But where? Sometimes the physician sent his patients to undergo hydropathic and braising treatment:—

While the sick folk in Clusium's fountain dare
Plunge the cold head or seek a colder air.*

But at others it was a sheltered nook they must have reached, for although the climate of Italy—the land of the olive and myrtle—is deemed to be the abode of zephyrs, the reverse is often found out to be the case, and Celsus himself gives a thoroughly British description of the North-east wind:—"Aquila tussum movet, fauces exasperat, ventrem tringit, urinam supprimit, horrores excitat, item dolores cruris et pectoris." If Celsus sent his patients to the sea it seems that sometimes they required a compensation which is not unknown at the present day:—

At the sea coast I shall expect to find
My wines of genuine and of smoother kind.

There is nothing new under the sun. Luxurious extravagance and want usually run side by side. We know the Roman rulers had to provide bread for the poor—*panem et circenses*—but the latter our poor laws do not supply. Luxury and penury alike lead to disease; the happy medium between the two to health; and I am rather under the impression that through the influence of hard times the pharmacist of the present day is suffering from a turn in the wind tending towards moderation.

The first book of Celsus treats of general regimen for healthy people, with specific instructions for the treatment of small ailments. Some of these directions were rendered

necessary by the luxury just spoken of; for instance, the custom of vomiting after meals. Celsus tells us that the Greeks divided medicine into three branches: the first, dietetic; the second, pharmaceutical; the third, surgical. The next book treats of the prognostics of disease and its treatment by the dietetic method, with copious information respecting the various foods and their proper use. Celsus also makes a variety of observations respecting seasons, winds, age, temperament, and other conditions of health. One passage struck me as of interest to middle-aged philosophers like ourselves, "*At utas media tutissima est, quæ neque juveniæ calore, neque senectutis frigore infestatur.*" There is much discretion and sound sense in the description of the various foods, both animal and vegetable. Generally speaking, foods may be said to have not more than a personal interest for pharmacists; but special aids for the digestion are attracting present notice, and, with respect to farinaceous foods, it is probable that more may yet be discovered as to suitable dietetic mixtures of these aliments. The Romans used a variety of cereals, as foreign wheat, winter wheat, siligo, a second kind of wheat, rye, barley, oats, rice, panick, and millet; and of legumes, beans, peas, lentils, and lupins. Some of these were of good juice (*boni succi*), some of evil. Of flours, may be mentioned siligo and pollen, varieties of fine flour, amyllum, whole meal, bran, and fur, which was, perhaps, a kind of groats. Aliea, a preparation of much repute, was made of rounded grains deprived of husk and whiteened with chalk for use, sometimes ordered washed. It was said by Pliny to be obtained from a plant called zea, and is translated maize; but this cannot be correct, as maize is a native of South America. I would refer those who desire more information to the book itself, but they must remember that lentils and whole meal have been appropriated, the former, at least, to somebody's advantage. *Sorbitio*, slops or gruel, and *ptisan* (barley water, &c.) were favourite remedies. The latter name has been preserved by the French in their tisanes, but has been abandoned on this side of the Channel. In dealing with *farinacea* we arrive at the directions for the cataplasm or poultice, of which there is more variety than now employed. *Cataplasmata* are directed to be made with flour, fine or coarse; and with barley, vetch, dandelion, millet, panick, lentil, bean, lupin, linseed or fenugreek meal, boiled and applied hot; besides which a variety of drugs are employed to render them emollient, rubefacient, or stimulant. *Gestation*, that is, exercise of divers kinds, friction, fomentation, baths, &c., are hardly pharmaceutical remedies, but elysters were administered, some of which were the same as are now used.

The fourth book is more purely medical, and treats of diseases of certain parts of the body; and catarrh being considered a local disease, we light upon the word *destillatio*, which suggests an interesting comparison between the use of words adopted in modern times from the Latin and the original meaning of the same words in the Augustan age. I may remark that this work of Celsus was the mine from which the medical writers, on the revival of learning, drew their medical Latin. In the word *destillatio* the allusion is to the humour which distills into the nostrils, distillation being synonymous with catarrh. The word *destillatio* is several times used, *mutatis mutandis*, with a like meaning, and in no other sense. *Pulvis*, as might be expected, is used with its proper and present meaning, but *tinctus* (the word *tinctura* does not occur) is used only in the sense of dipped, as in the case of water into which a smith's hot iron has been frequently dipped, which is said powerfully to affect the spleen. *Decoctum* continues as of old, *decocta* being numerous, but all extempore preparations. *Infusum*, however, is only used with its original meaning of pouring upon, as cold water poured upon the head. Neither *liquor* nor *solutio* are used in our technical sense, or in any way approaching to it; the term liquid as distinguished from solid is of course frequently to be met with. Probably at a much later period solution of any principle in water was, as we shall presently see, but little understood. In like manner *essentia* is something new altogether. The word *extractum* occurs a few times, and in the preparation of *Arteriace* I thought I had met with its use in the modern sense. Certain preparations are directed to be boiled "*donec extracta inde gutta indurescat.*" But I was too hasty; it was not the pharmacist's technical meaning,

* Francis: "Horace."

Spiritus is used only in the sense of breath or breathing, wind and air; what may be termed the spirituous application of the word did not then exist; it evidently grew out of the sense of something purified, refined, or ethereal. I may remark in this connection that the name *fermentum* was given to yeast. The word *pilula* is not to be met with, though we may find pills under another name; it is used by Pliny, and is the diminutive of *pila*, a ball; singularly enough, *pila* is a mortar. The word *linimentum* did not yet exist; but there are liquids "*quæ illinuntur*," a direction still given by physicians. These liquids, Celsus tells us, were called *enchrista* by the Greeks, a word still surviving in *chrisen*, which means to anoint rather than to sprinkle. The word *linamentum* signified lint or linen, *linitum* being a word also used. *Collyrium* was used in a somewhat more extended sense than that of "eye lotion," as will be presently explained. *Gargarisma* is not used, but the verb from which it was derived is to be frequently met with.

Referring to the general subject of the book, we find that for the diseases described special medicines and treatment are directed. Amongst the medicines occur the standing formulæ, and also a variety of extempore preparations; amongst these may be mentioned some to be taken internally, as decoctions and the juice of fresh plants. One preparation is still known, and has not altogether lost its popularity, that is acetum scillæ; this, however, was no baby in the time of Celsus, as it was said to have been used by Pythagoras 500 years before.

We now arrive at the fifth book, where, having left the region of dietetic treatment—which, however, includes, as we have seen, the use of a number of medicines—Celsus enters upon the consideration of diseases more usually combated with the aid of drugs. Erasistratus, he says, and others who styled themselves empirics, put great confidence in medicines, but Asclepiades, for whose opinions Celsus seems to have had the greatest respect, pretty much laid aside the use of them—"with some reason, as most medicines offend the stomach, affording bad juices"—and turned his attention to the food (*victus*). Celsus, however, judiciously advises either class to look to both means of cure, and as medicines have peculiar powers he commences by reciting their names and virtues. This sketch being specially intended to bear upon the history of pharmacy, and not upon that of materia medica—a wider and most interesting subject—I will merely allude in general terms to the substances mentioned in the text.

In the first place drugs are classed under their respective properties and uses, and it is rather a surprise to find that these generally have reference to their external action upon the body, but we may remember that the very earliest allusions we have respecting pharmacy are to ointments. For instance, in Exodus xxx. myrrh, cinnamon, calamus, and cassia with olive oil are to be obtained, "and thou shalt make it an oil of holy ointment, an ointment compound after the art of the apothecary." That enterprising lady, Medea, also compounded an ointment to render Jason invulnerable. Other instances might be given. So Celsus introduces styptics, vulneraries, digestives, cleansers, rodents, caustics, resolvents, and so forth.

Aperientia open mouths in bodies, which the Greeks call *stomata*. *Purgantia* purge wounds and not bowels. Let me give one short section by way of example of the drugs used, that of evacuants and drawing remedies, viz., ladanum (*Cistus creticus*), ground alum, omphacium (verjuice), gall, chalcitis (copperas), bdellium, turpentine, and pine resin, propolis (bee glue), dry figs boiled, dove's dung, pumice, meal of darnel, green figs boiled in water, elaterium, bay berries, nitre (soda?), and salt. Although in this synopsis of the materia medica allusion is made almost exclusively to the external application of drugs, it must not be supposed that such is their only use; for instance, in the previous book a long list is given of diuretics to be taken internally, and we shall find similar examples in the list of preparations. Celsus mentions from first to last perhaps 400 drugs. Many of these have continued in use to the present day, and the list contains some of our most valuable drugs, as scammony, aloes, opium, hyoscyamus, cantharides, ammoniacum, &c. It will be remembered that the Mediterranean coasts produced many species of drugs, and that the East, with its aromatics, its gums and balsams, was

open to the trade of Europe through Antioch and Alexandria. Amongst the minerals mentioned are metall earths and oxides, mostly native, but some produced, as which include in some shape or other arsenic, copper, lead, iron, zinc, and antimony. Silver and gold were not officinal; but the latter was used for fastening loose teeth. Soap, potash, and lime were the alkalies, acetic the only acid. Wine is freely used both on its own account and as vehicle. *Passum* (a kind of raisin wine) and *mulsa* (hydromel) were also freely used. Most of the articles are well known and identified, others doubtful, whilst of others as Targa, one of the editors of Celsus, said: "*Qui monstrat quid sit erit mihi magnus Apollo*;" pondering on which passage led me to think of the honours bestowed on pharmacists—one may by chance get a degree *honoris causa*, or phenomenal F.R.S. Something between a profession and trade, there is not even a doctorate of pharmacy.

Pharmaceutical preparations are naturally introduced with a summary of the weights and measures used in compounding them. The ounce is divided into seven denarii of about 62 grains each, and the denarius into six sextantes, a sextans being equivalent to the Greek obolus, or a little more than $\frac{1}{2}$ a scruple.

Simplicia, simples, is the name given by Celsus to uncompounded drugs, a designation that lasted longer than the word when Shakespeare wrote of one "culling of simples," but now seems to have disappeared. Celsus says, "*sæpe simplicia opitulentur, sæpe mixta*," and in this last word, compounding of simples, lies the chief of the pharmaceutical art, the culling being left to others. Perhaps it is vanity magnify our office; this designation of its duties runs simply enough, the words run smoothly; but he that practised pharmacy alone knows its sinuosities and responsibilities. I say sinuosities, which may seem an odd word to use, but pharmacy, more than most professions, requires its follower knowledge both in the highways and byways of learning, and he often has to deplore, to himself at least, ignorance, whilst he may apply to his profession the well-worn quotation—for did not Hippocrates, the father of medicine, originate it?—"Vita brevis, longa ars."

To recur to the text. External applications, as may be expected, are most prominent. *Malagmata* have the first place. A malagma was a plastic application; something between a plaster and a poultice. There are 36 formulæ given, some of them being named according to their properties, as malagma for pleurisy, for the gout, the liver, the spleen, &c., whilst others bear the name of their inventor as Moschus, Chrysippus, Ctesiphon. Next come plastic *emplastra*, 29 kinds. Some of these have for their basis litharge (*spuma argenti*) and olive oil; and it is directed that when these are ordered, they are to be boiled together, so that we follow in making our plasters the method employed at Rome 1,800 years ago. Special qualities given by the addition of verdigris, minium, galban, cerussa alba, &c. Basilicon is older than the image of Royal Stuart with which I had associated it; its formula panax—perhaps opopanax—galbanum, pitch, resin, and oil. Then come pastils (*pastilli*), which the Greeks called *chiskous*, in which we follow the Greeks, cutting off the end of the word for the sake of euphony. Pastils or troches are made of dry medicaments, mixed up with a liquid not greater than wine or vinegar, and afterwards dried. When used they are to be moistened with the same liquid. There are six kinds, six of which are to be applied externally; but the seventh is to undergo what we consider to be the legitimate disposition of such named remedies. This kind is for stone, and, as the formula and directions for use are given after the manner of a modern prescription, I will quote the classic Latin of Celsus:—"Cassia, croci, myrræ costi, nardi, cinnamomi, dulcis radicis, balsami, hyssopi partes portiones contrentur; deinde vinum lene instillatur pastilli fiunt, qui singuli habeant P. ʒ (sextantem) h. singuli quotidie mane jejuno dantur."

Next come pessaries (*pessi*). These remedies have had considerable popularity; but the pessaries of Celsus used soft wool as a foundation, which was saturated with oleaginous or other preparation, of which there are nine kinds; the last, if effective, though costly, might be worth notice *non comprehendit, adeps leonina ex rosa (ol.) mollienda*. These are followed by compound powders, all for application, except a sternutatory, of which white hellebore is

is. Gargles are described, and the formulæ of antidotes given. Of these the most celebrated is Mithridates, by which daily the monarch of that name secured himself against the danger of poisoning. This medicine surges to our day; but its glory has departed. *Acopa* are a class of liniment. *Catapotia* are the predecessors of our modern pills. No directions are given for dividing the mass when made, the only instructions being that the size of a vetch seed, a pea, a bean, an Egyptian bean, or a lupin, the case may be, is to be gulped down (*devorasse*). One mulla is anodyne, in which *papaveris lacrimæ* is directed to be used, and in a second for a cough—*Athenionis*—the same drug is directed to be used, and two *catapotia* the size of our bean (*faba nostræ*) are to be taken morning and night. This dose would be equivalent to 20 grains or grains of opium, which indicates some discrepancy of weights. The same discrepancy is shown in the use of elaterium as given by Dioscorides, viz., an obolus, which, if the strength were the same as at present used, would probably be an obolus for Charon. A few miscellaneous preparations conclude the list of regulation formulæ. In the next book is a long list of *collyria*, of which many are said to be dissolved or used as a *penicillium*, as the case may be. I have now brought to an end my brief sketch of the Pharmacopœia of Celsus. If I have made mistakes in ordering it I trust I may be forgiven. I have met with none myself. For instance, Celsus tells us that, if a *sanguis* be swallowed, salt and vinegar should be given. The editor says, *à propos* of this, that in every other place Celsus calls the leech *hirudo*. I take another edition with a good index, and find six references to *hirudines*, but as they prove to be *hirundines*—much more agreeable animals—I am still in doubt as to whether Celsus "ordered leeches." I could mention other discrepancies; but, as I say, I ask you to measure for myself.

There is yet a practical phase that neither physician, pharmacist, nor the public would let pass in those days any more than in these present, namely, the pecuniary, and we find it treated of in Horace:—

"Take the ptisan! What will it cost?" "Nay, hold,
A very trifle." "Sir, I will be told,"
"Threepence." "Alas! what does it signify,
Whether by doctors or by thieves I die?"*

The ptisan of the text was rice water; but advice might have been included. It is the old story: He spends a fortune over a dish, but grudges eight asses—say 6d.—for being cured of the effects of it.

Let us again take up the history of pharmacy. After a lapse of 1,600 years great and mighty changes had come over the world. Pharmacy had also experienced its vicissitudes. Many searching spirits had arisen, and a new science, being unfolded to the world by a name unknown to Celsus, chemistry and chemistry were born and grew together. With their history are associated the names of Basil Valentine in his "*currus triumphalis antimonii*" and his discovery of phuric acid, Raymond Lully, Roger Bacon, Albertus Magnus, and that prominent and burly figure Paracelsus—

The wondrous Paracelsus, the dispenser
Of life; the commissary of fate, the idol
Of princes—

the destroyer of Galenism and a man of great genius, but a very egregious quack; author of a new medicine and a newology; commonly believed to possess the double tincture, namely, the power of transmuting metals and curing diseases. Not much of his own survives, but appropriators have made good use of his ideas. Henceforward we have chemistry as well as galenic remedies. The times had been strange, wild, and irregular. Magic, superstition, and astrology had a hold upon physie, as upon most things spiritual and temporal. Things medical, as things in general, were, however, now gradually improving in most countries of Europe, and in 1618 was issued the London Pharmacopœia, henceforth to be the law of the pharmacist. In early times it had a hard struggle to hold its own; the old views had survived, new houses arose; it followed but did not lead, but in following began the ascent to the proud position the British Pharmacopœia now occupies. It is not,

however, to the Pharmacopœia Londoniensis, but to the pharmacy of the times, irregular perhaps, that I wish to call your attention for a few minutes, and this is to be found in the dispensatories.

A famous dispensatory of the seventeenth century was that of Dr. William Salmon, Professor of Physick, who lived "at the Blew Ball by the ditch side nigh Holborn Bridge," which went through many editions. It is professedly a translation of the Pharmacopœia with explanations and commentaries, and a dictionary of the materia medica. The doctor is not afraid to make animadversions upon the work of the august fellows of "the Colledge," which it appears was lately reformed. For instance there follows the direction for melilot plaster:—"A learned but long discourse, the Colledge here talks almost like an apothecary as the vulgar phrase is; but not half so well." An interesting phrase this, and by the way, the apothecaries must have taken the ability to talk with them when they went over in 1815. Men were outspoken and hard hitters in those days, the amenities of life were less understood than at present. This may be termed the redundant age of pharmacy. The revival of learning had brought forward all the old knowledge stored up in the pages of Pliny, Galen, and Dioscorides, and other ancient writers. In England, Gerard, Parkinson, and the herbalists were opening these stores to the public view; as Salmon says, "In the very best authors extant a great part are collections"—a fact probably true of many authors of the present day. Chemistry had begun to contribute its share. Superstition had not died out, cures being still performed "astrologically, galenically, and chemically." Not long before this, Jerome Cardan, the first physician of his time in Europe, professor of mathematics, and a philosopher, was accustomed to draw the horoscopes of his patients, and himself believed in them. The conflict between the old and the new, between rationalism and dogmatism, had commenced even in pharmacy, but as yet that science was blessed with a superabundance of material.

Salmon himself was a bit of a quack, even as the times went. I will give a slight sketch of his book. The first book treats of simples—the vegetable materia medica; the second of animals, including man, birds, beasts, serpents, insects, and fishes. Many of the substances mentioned are preparations, not simples. Man's body, living or dead, affords 39 medicaments, so it may readily be imagined that hardly a bone or tissue, a secretion or excretion, but plays its useful part. A list merely would be amusing reading, but hardly fitted to the proprieties of the present day. So through the whole zoologia, the obscene preparations, of which we find a few even in Celsus and many in Dioscorides, were in full force; and it is odd to figure to oneself the disgusting compounds that may have been swallowed by the good people whose lives we read the story of, as well as by the wicked and the great unwashed. *Tempora mutantur et nos mutamur in illis*; the fastidious tastes of those days were probably very different from the fastidious tastes of the present day. Custom reconciles men to strange performances. Francis Rabelais was a physician, and there was a good deal of the grotesque spirit of pantagruelism about middle age medicine.

Next follows the mineralogia, and then the preparations of the Pharmacopœia, translated and copied with considerable comments and additions. These are divided into compounds internal and compounds external, and we now meet with the names that are still in use at the present day. A few have fallen out of use, as magisteries—precipitates both mineral and vegetable—except that perhaps now and then the magistry of bismuth is heard of. Quiddonies, kinds of rob or syrup, apparently pleasant preparations, have disappeared altogether, and lohochs survive only in the lohoch sanum, a name which in my district is curiously modified so as to have caused a totally different preparation to be substituted. But I would here remark that the fine old remedies and recipes that people used formerly for their minor complaints have very much succumbed before those all-promising but mostly delusive shams called patent medicines.

The next book treats of the "Practice of Chemistry," and has chapters on principles, instruments, dissolution, sublimation, &c.; that on fermentation is as follows:—"Fermentation is a certain manifestation of life fitting it for a resuscitation, and without which it would remain captivated

* Francis's "Horace."

within the bonds or chains of death; or, it is the breaking of the bond of corruption and putrefaction by the power of life assisted by a homogeneous matter or principle already freed." Quincy, who wrote perhaps 50 years afterwards by the light of his modern days—Quincy, whom in my junior days I always considered to be the grandfather and general ancestor of pharmacology, because his was the oldest book upon our shelves—remarks, quoting the passage: "And what confused stuff is this from Salmon!" But is there so much fault to be found with it? The modern problems of biology were very far beyond Quincy's ken, who proves fermentation to arise from unequal specific gravities—a sort of "here we go up, up, up—there we go down, down, down" process; but Salmon seems to have had a glimpse, if but a hazy one, of the truth, and if he wrote most delicious nonsense upon many subjects it may at least be said for him that on this he wrote what may well pass muster with much that is termed speculative philosophy in the present very modern times.

I shall not trace my way to the pharmacy of the present day by the direct path, but will just touch upon a work or two that indicate the way in which the old follow-my-leader style of writing gave place to that which culminated in "Pharmacographia." Remedies from newly-discovered lands must necessarily be treated *de novo*. As early as 1661, a beautiful little book was published at Venice, written by Gaudentius Brunacius, "De Cina Cina seu Pulvere ad Febres Syntagma Physiologicum." I said newly-imported drugs required new treatment; this is true to a certain extent, but yet this author is soaked through and through with the old ideas. He tells how the bark was introduced, and then he discusses its nature, and through the book as far as I have read it dwells at intervals upon this one theme, which evidently embarrasses him, viz., its quality of heat and dryness. Galen gives every plant its four degrees of heat or cold, dryness or moisture, and almost every writer down to a later period than this follows him. How they found them out would take a *magnus Apollo* to tell. What is cold and dryness? Is it a positive quality, as Galen has it, says Brunacius, or is it, as Cardan, in his book "De Subtilitate" (on final causes, &c.), says, a mere absence of heat? Author after author amongst the ancients is quoted, and logical proofs are given, illustration after illustration, but still he is not satisfied. How heat can exist in wood is a problem in physics he cannot clearly comprehend, though he calls to his aid the case of the burning mirror by which the vestal virgins rekindled the sacred fire, the case of the Apulian rustics who produced fire by the friction of dry sticks, and that of the hair-cutters, who say their instruments draw sparks from the heads of their clients. Then further how the heat or the cold of the bark acts upon the heat or cold of the fever, though puzzling, is a question that it becomes a "Syntagma Physiologicum" to answer, and it is done accordingly. After this, we have the pharmacy of the drug, and the ninth chapter treats and proves very satisfactorily to our author "why cina cina should be given infused in wine"; on the other hand the next chapter answers the question whether cina cina should be exhibited in water in the form of infusion or decoction, and the answer given in the first line reminds me of *Punch's* advice to people about to marry—"Respondeo neutro modo esse prebendum," and the reason follows, that decoction in water takes away the strength of medicines so prepared. This book must be one of the earliest extant specially treating upon cinchona, and it fixes the date at which it was brought to Rome to Cardinal Lugo by the Jesuits as the year of jubilee, 1650.

In 1681 was issued "A New Mystery in Physick discovered by Curing of Fevers and Agues by Quinquina or Jesuites Powder." This is a little book translated from the French of Dr. Belon, preceded by an introduction by an English author which contains a great deal of very curious chemistry. Although but a few years had elapsed since the former work, either the time or the place of writing had caused a wonderful difference in the treatment of the subject. The ancients are altogether left out of consideration, and a much more rational view is taken. The pharmacy is extended, wine is still the favourite vehicle, but there are also tincture, extract, infusion, pills; altogether the book reads much more pleasantly than the stilted English works of the same

period. One step more, and in 1769 we are landed in gentle and respectable sobriety that characterised pharmacy and materia medica of this present age unbrightened by the influence of Dr. Pereira, and this we take in the company of Dr. Canvane, of Bath, whose dissertation on the Oleum Palmæ Christi reached a second edition in 1769. There is a little bit of history in this pamphlet, is now become official, it being sold at the Apothecaries' Hall and several other shops in London and Bath," but it may be added that this was rather late introduction, as the seeds were used by Hippocrates 1200 B.C. Dr. Canvane deals most fully with the therapeutical value of the oil, but he does not forget pharmaceutical, and he introduces us to "the uncomparable Dr. Huxham, of Plymouth," whose name is feared, gradually being forgotten by pharmacists. Not that of Mr. Goulard, who flourished the triumph motto, *Redeunt Saturnia Regna*; the extract of Saturn is forgotten, but as Mr. Goulard's extract it survives, as if his name is "written in water," it is also written lead. Mr. Goulard's work is well known; but the others I have alluded to, especially the first, are, I believe of considerable rarity.

I have now brought to a close my sketch of a few aspects of the history of pharmacy. My original intention was to have said something of the pharmacy of the present; but I have already had to cut my story short. Whether the pharmacists can find time to trouble much about the pharmacy of the past when that of the present gives them much to think of is perhaps rather doubtful, but there is at least considerable interest of a quaint sort to be gathered from it, and I cannot but think that if the history of pharmacy, which has not yet been written, were well put together, it would be worthy of the doing.

If pharmacy advanced slowly, the same may be said of medicine, which, from the time of Galen to the sixteenth century, gathered little or nothing but the dust and cobwebs of scholastic theories. Then the sap began to flow from the barren stems of many sciences. Pharmacy was benefited by the advance made in natural philosophy and chemistry, and chemists of repute were found in the ranks of its followers. It for long, however, occupied but a second place as a subsidiary branch of medicine, and it was only in the present century that it first stood alone. Since then its growth has been rapid, a constant process of evolution and survival of the fittest. Its scientific history is written in the Year-books of this Conference and in the Journals of the Pharmaceutical Society, and its commercial—for it is commerce—in the painstaking and moderately rewarding lives of its numerous followers.

Mr. GROSE moved a vote of thanks to the President for his most valuable and instructive address.

Mr. GREENISH seconded the motion, remarking that touching allusion to Mr. Stoddart's death would find an echo in the heart of every one who had known him.

Mr. HUGHES (Llandilo), speaking in the name of the Welshmen, wished to add an expression of the delight with which he had listened to the President's very interesting address.

The reading of the papers was then commenced. The first was a

REPORT ON THE ACONITE ALKALOIDS.

By C. R. A. Wright, D.Sc., and E. H. Rennie, M.A., D.S.

The alkaloids contained in 300 lbs. of fresh aconite herb (*A. Napellus*), grown at Foxton, in Cambridgeshire, were isolated by the methods described in last year's report. They were dissolved in ether, but crystals could not be obtained; they appeared to contain a notable amount of aconitine, though not so active as pure aconitine.

The quantity of active alkaloid contained in the aconite herb is probably somewhat less than that contained in roots, reckoned on the dry substance.

It can, however, hardly be concluded from these experiments that it is a general rule that aconite roots are richer in crystallisable aconitine than the dry herb; for according to Mr. John Williams it has sometimes happened in the factory that no crystallisable aconitine, but only non-crystallisable bases, could be isolated from batches of roots worked up on the manufacturing scale in precisely the same way

her batches which readily yielded crystals; it is therefore desired that further experiments should be made as to the quantity of crystallised aconitine that can practically be isolated on the manufacturing scale from roots of various ages and grown in different soils and climates, &c. Such experiments as these, like the analogous questions as to the precise method of manipulating and what menstrua will best suffice on the large scale to separate aconitine economically from the non-crystalline alkaloids accompanying it, cannot readily be carried out by the scientific chemist working in his laboratory on a comparatively small scale; but they are indispensable in order to put the economical production of crystallised aconitine on a sound commercial footing.

Professor ATTFIELD thought the Conference should not lose sight of the important suggestion made by the reporter respecting investigations of the influence of climate, soil, light, &c., on the plant in reference to the production of the alkaloid. Also, he mentioned as important the determination of the best modes of commercial manufacture. It was a question whether the Conference could proceed further in this direction, by the aid of grants, or now leave the matter, for a time, at all events, to trade enterprise.

Mr. SCHACHT had noticed in the paper the observation that it had been found more difficult to crystallise the alkaloid, owing probably to the presence of a large proportion of uncrystallisable substances. It had occurred to him that this was somewhat opposed to the general experience with regard to crystallisation, and he would like to inquire on what grounds the authors had come to this conclusion.

Mr. UMNEY had had no special experience with this alkaloid, but he had frequently found the same difficulty in crystallising the quinine salts in solutions of large quantities of the uncrystallisable cinchona alkaloids. He believed that a similar difficulty occurred with sugar solutions, but he could speak positively with regard to solutions of the cinchona alkaloids.

Mr. GERRARD had also found the presence of large quantities of amorphous bodies retard the crystallisation of such bodies as pilocarpine and verine.

Mr. REYNOLDS suggested the possibility of the conversion of the crystallisable into uncrystallisable bodies in the process followed.

Mr. SCHACHT said that was the point he wished to ascertain.

Professor ATTFIELD said it should be remembered that the uncrystallisable substances, so called by Dr. Wright, might turn out to be crystallisable when better methods of treatment had been discovered. He also affirmed the observations respecting the difficulty of obtaining crystals from solutions containing large quantities of amorphous matter. Sometimes in these researches after alkaloids, &c., hopes were raised by a crop of crystals, which turned out to be only sulphate of lime.

Mr. REYNOLDS said that Dr. Pereira's old pupils would remember the story of the alkaloids discovered by Dr. Thompson, which proved to be only sulphate of lime.

Mr. GREENISH thought the difficulty might be accounted for by the probable conversion of the starch of the roots into a sort of gummy matter. He had noticed in making sections both of *acon. ferox* and of *acon. nap.* that the root was so hard as to almost turn the edge of the knife. It became most of a stony nature.

NOTES ON THE ESSENTIAL OIL OF BUCHU LEAVES.

By Professor Flückiger.

THE author had examined the crystalline substance separated from essential oil of buchu by the aid of caustic soda. He found that it belonged to the class of phenols, and in allusion to Diosma, the Linnean name of the buchu genus, named it diosphenol. Its formula is $C_{14}H_{10}O_3$.

The crystals of diosphenol melt at 83° (181.4° F.), and boil at 233° (451.4° F.). It is readily soluble in alcohol, 83 sp. gr., less so in ether, but very sparingly in water. The aqueous solution in boiling water, on cooling, affords small acicular crystals. The solutions are perfectly neutral, and on addition of an alcoholic solution of ferric chloride assume a dark colouration of dingy green. The crude oil, as well as the water distilled from buchu leaves, exhibit the same behaviour. Diosphenol has a slightly aromatic odour and taste, *sui generis*, by no means reminding of buchu leaves.

The buchu oil, which had been exhausted with caustic soda, on further treatment distilled chiefly between 205° and 200° C.

This oil is remarkable from its odour, which agrees very nearly with that of peppermint. No other essential oil known to the author possesses this aroma except peppermint. The oil under examination is devoid of rotatory power, and consists of one of the numerous modifications of

the molecule $C_{10}H_{18}O$, the presence of which is more and more frequently ascertained among the constituents, both solid and liquid, of essential oils.

Professor ATTFIELD said the substance like carbolic acid was interesting, and it was curious that Professor Flückiger had not succeeded in combining it with alkalies. He noticed that only alkaline solutions had been used, and thought it probable that, if treated with its exact equivalent of solid alkali direct, it might combine. He supposed the reaction with perchloride of iron given by the terpene of oil of buchu was due to this diosphenol.

Dr. POWER, who had worked with Professor Flückiger, said that was so.

NOTES ON THE CONSTITUTION OF PEPPERMINT OIL.

By Professor Flückiger and J. B. Power, Ph.D.

PEPPERMINT OIL owes its value to the solid compound termed menthol, $C_{10}H_{16}OH$. No other constituent of peppermint oil had been isolated, so it seemed of interest to determine the nature of the liquid constituents.

The oil employed for analysis was Mitcham oil, deprived by repeated rectification as completely as possible of menthol, supplied by Schimmel & Co., Leipsic.

Dr. Bertram, the superintending chemist of Schimmel's laboratory, states that crude Mitcham oil yields 80 to 85 per cent. of a liquid product, sold by the firm as "extra strong oil," and consisting principally of menthol, together with about 10 per cent. of an oil which has remained as yet uninvestigated, the loss of 5 to 10 per cent. resulting from the separation of the constituents consisting of soft resinous matters. The oil from which the menthol had been separated was submitted to fractional distillation. The largest portion distilled at 165° to 175° C., a smaller fraction, somewhat viscid, at 250° to 275° C. The first fraction purified by repeated distillation over metallic sodium divided into two fractions, boiling respectively at 165° to 170° C. and 173° to 176° C.; at the same time the peppermint odour of the original liquid disappeared, and gave place to that of freshly-distilled oil of turpentine. The two fractions were then separately submitted to analysis, and both were found to correspond to the formula, $C_{10}H_{16}$. The sp. gr. of the former is .859, of the latter .856 at 20° C.

The small fraction collected at 250° to 275° C. afforded after repeated rectification over metallic sodium a colourless, limpid liquid, boiling at 255° to 260° C. It was analysed, and its formula proved to be $C_{10}H_{16}$, or rather the multiple, $C_{15}H_{24}$. Its specific gravity is 0.912 at 21° C., its rotation in sodium light, in a tube of 100mm., at 25° C., is $9^\circ 2'$ to the right.

The PRESIDENT said no doubt these observations might be found to have some considerable bearing on the tests for the adulteration of oil of peppermint.

Dr. POWER pointed out the remarkable fact that oil of peppermint, when entirely separated from its menthol, had an entirely different odour, somewhat resembling lemon, but it was a true terpene.

Professor ATTFIELD said one section of the paper showed the risk some experimenters run in relying on commercial specimens. Essential oils, and other substances on which original researches were made, should always be prepared either by the operator himself or by a manufacturer whose name should be given in guarantee of the trustworthy character of the substance examined.

Mr. MASON said that adulteration of oil of peppermint with alcohol in this country was unusual.

Mr. GREENISH said that the risk of adulteration was liable to vitiate every experiment. You could not be sure of the purity of anything. You could only get genuine port wine by going to Portugal for it, and sitting on the cask till you got it home.

Dr. SYMES asked if the resinous matter was constant in all the specimens examined. He would have thought it might vary in oils of different ages.

Mr. UMNEY said that no one who had seen the process of preparing oil of peppermint at Mitcham and elsewhere could be surprised at the presence of resinous matter, the presence of which was probably due to the method of manufacture. The herb is cut down by the scythe, and the whole of it thrown into the still and heated, not by steam, but by fire. Some of the wood becomes charred, and is liable to yield some empyreumatic products. No oil could be considered pure until it had been once rectified from water.

Mr. REYNOLDS said the commercial term "best" could not be relied on. He related a story told by Southey, of a glove whose various qualities of gloves were described as "best," "better than best," "better than better than best," "best of all," and the "real best."

RESTORATION OF DISCOLOURED SYRUP OF IODIDE OF IRON.

By T. B. Groves, F.C.S.

THE author agrees with other writers that this syrup, if made according to the British Pharmacopœia, with pure sugar will keep fairly well, so that well-accustomed dispensing establishments fail to see any difficulty in the matter. But those who perhaps are not called upon to dispense the article once in a month often find on searching the cupboard that the syrup without some treatment is not presentable.

The discoloration of syrup of iodide of iron is doubtless due mainly to the presence of free iodine; when turbidity is present there is probably also a basic persalt of iron in suspension which adds to the effect. To get rid of both of these it is only necessary to dilute the syrup with say a third of its volume of water, to boil briskly for a few minutes, then filter through paper, and finally reduce by evaporation to its original bulk. The syrup will then have resumed its original appearance.

The strength of the preparation will not have been materially altered by this treatment, for it takes a wonderfully small quantity of iodine in the free state to colour a large amount of liquid. This treatment by boiling was not new. "It had been suggested," Mr. Groves said, "by some writer whose name I have unhappily forgotten, but whose useful, though often unused, suggestion has not escaped me."

Mr. Groves had made some experiments with the object of avoiding the delay attendant on the process already mentioned.

When a persalt of iron is brought in contact with a soluble iodide, the salt is reduced to the proto condition, and free iodine is eliminated. It was at one time thought that under these circumstances a per-iodide was formed, but Mr. Squire, jun., some years since proved conclusively that such was not the case by showing that the colour could be removed from such a liquid by simply shaking it with an ordinary solvent for iodine, such as benzine or chloroform. However, if to such a liquid containing iodine in solution, caustic potash or soda be added, precipitation of ferric oxide will result, and the iodine will combine with the base of the precipitant. Applied to a discoloured syrup of iodide of iron the process does not answer, and that probably because the sugar exercises a solvent action on the precipitated oxides. In fact, it is after filtration more discoloured than ever.

Mr. Groves had formerly pointed out the effect produced by the presence in the syrup of a trace of phosphoric acid, which, by seizing at the moment of its formation the peroxide of iron and rendering it insoluble, effectually prevented the reaction ending in the elimination of free iodide that would otherwise have resulted. Syrup, even dilute, would keep for years after being so treated, but of course one gets instead of the discoloration the slight turbidity occasioned by the deposit of perphosphate of iron; this, however, being colourless and easy of removal by deposit or filtration, is of but little moment. Addition of phosphoric acid to syrup already discoloured is of no avail; the mischief has been done, and no persalt remains for it to act upon. If, however, previous to the addition of the acid, a few drops of liquor potassæ be stirred into the syrup the colour disappears almost immediately, and the acid being in slight excess, will not again return.

Thus he found by experiment that when to half a fluid ounce of syrup discoloured by one drop of liquor ferri perchloridi, he added enough liquor potassæ (the amount would vary according to the acidity of the syrup) to produce a distinct greenish colouration, the further addition of two drops of dilute phosphoric acid restored the syrup to its original tint.

Mr. Groves prefers this method to the well-known use of hyposulphite for this purpose, though he expected it would be regarded as hateful and unorthodox by some.

Mr. UMNEY said one point of importance in the preparation of syrup of iodide of iron was the sugar used. Most of the fine white sugar usually sold, at least 70 or 80 per cent. of it, was beetroot sugar, and that would not answer for the preparation of this syrup. He had known a syrup most accurately prepared, and brought to the exact specific gravity of the Pharmacopœia, which after a time went to a solid mass. He had found no

difficulty when pure cane sugar was used. He always obtained that known as Martineau's.

Mr. HUGHES (Llandilo) had used Martineau's sugar, and found answer well.

Mr. ANDREWS said he had formerly obtained his sugar from grocers, but now he got it from a large firm of lozenge-makers, the best that could had, and had found better results.

Mr. NAYLOR said he had noticed lately that samples of granulated sugar from America contained appreciable quantities of sulphur. In the preparation of syrups containing phosphates such sugars would give off a notable quantity of sulphuretted hydrogen. He had found that there was considerable difficulty in getting pure cane sugar, and he would like to know whether Martineau's or other pure cane sugar could be always obtained. He would hardly say he was dissatisfied with the formula of the British Pharmacopœia, but he thought the long boiling which was thought necessary to effect the combination of the iron with the iodine was not advantage. The solution thus obtained, if filtered, was found to throw down a basic salt of iron on the filter, which did not occur if it were boiled for so long. In the latter case the solution could be filtered, and might be kept for some hours before making the syrup, and the syrup prepared from it would keep good for a long time.

Dr. SYMES said there had been discussions and correspondence on this subject as long as he could remember. One remark in Mr. Groves' paper had struck him, that was that the country chemist he pictured had gone a cupboard for his syrup of iodide of iron. It occurred to him (Dr. Symes) that that was the place where he ought not to have gone to look for it. He had found that if kept in the window, exposed to a full light, would remain colourless much longer than if kept in a dark cupboard. He had found that some discoloured specimens could be restored in the manner indicated by Mr. Groves, but that in other instances this was not the case. He was rather disposed to think that oxidation had something to do with the change, and, possibly, the sugar also. Ten years ago, in a paper he had read before the Conference, he had pointed out that beet sugar might be so far purified as to be perfectly available for pharmaceutical purposes, but it required a greater degree of manipulation than cane sugar. The sulphur in white sugar was due to a proportion of ultramarine, which was very generally used to colour sugar, this being readily decomposed by an acid. Some samples of blue writing-paper were coloured with ultramarine, and, if a moist crystal of citric acid were wrapped in such, the odour of sulphuretted hydrogen was developed almost immediately. The American refined was all cane sugar; there was a German granulated sugar in the market which much resembled it, but this was entirely from beet, and contained much ultramarine. He thought this impurity deserved the attention of public analysts more than some of the trivial matters with which they occasionally occupied themselves.

Professor ATFIELD said that some experiments were wanted on the relative solubility of cane and beetroot sugars. He thought there was reason to believe that they were not identical, but probably isomeric bodies. Mr. Groves had raised the question why a coloured syrup was not decolourised by a drop or two of solution of potash or soda, and thought that this might be due to the presence of oxides of iron in solution. The fact is you have a persalt of iron, perhaps a ferric saccharate, in solution which probably acts like ferric chloride or ferric sulphate, turning the iodine from the ferrous iodide. When reduction was complete, probably alkali would remove colour. But the author's method was a better and shorter mode of dealing with the difficulty.

Mr. FLETCHER said that a very interesting paper by Mr. Creuse, he believed, had appeared some two years ago in the *American Journal of Pharmacy*. He (Mr. Fletcher) had remarked the fact, which was well known, that the discoloration of syrup of iodide of iron never went beyond a certain point, but was arrested when a golden-sherry colour had been reached. In such syrup he always found the presence of grape sugar or hydriodic acid, and he assumed that the process of decomposition was stopped by the grape sugar when the latter had been formed in sufficient quantity. He had found that if the cane sugar used were mixed with one third its weight of grape sugar the discoloration never took place. The results seemed to be confirmed by the observations of Mr. Groves, the hydriodic acid converted cane into grape sugar, and it was possible that the exposure of the syrup to a strong light had a similar effect.

ON THE DETECTION OF AMORPHOUS QUININE IN CITRATES OF IRON AND QUININE.

By Dr. De Vrij.

AMORPHOUS QUININE substituted for crystalline in the above is easily soluble in ether, and the substitution will not therefore, be detected by the test of the Pharmacopœia. It can, however, be detected by transforming the separate quinine into a neutral oxalate. This oxalate after being thoroughly dried on a water-bath is dissolved in chloroform

* Mr. Fletcher writes to say that he finds, on reference, that the author of this paper was not Creuse, but P. L. Hammer. It appeared in the *Chicago Pharmacist*, April, 1876.

and the solution, if necessary, filtered. If a few drops of water are put on the top of this solution in a test-tube the oxalate of quinine will take a part of the water and crystals of oxalate of quinine will appear in the chloroform, whilst the water on the top remains clear and uncoloured if the medicine is not sophisticated. If it contains, however, amorphous quinine the oxalate of this base will be taken up from the solution in chloroform, and the water on the top of this solution will be more or less yellow coloured by the oxalate of amorphous quinine which has been dissolved by the water.

Mr. UMNEY said the test seemed to be a simple and a pretty one, and might prove valuable. Amorphous quinine was almost always present in citrate of iron and quinine, and indeed to a small extent the alkaloid was converted from a crystalline to an amorphous condition by the process of manufacture.

Mr. FLETCHER said that having some little experience in citrate of iron and quinine, Dr. De Vrij's paper was to him particularly interesting. He had hoped from its title that the author would have given a process for the quantitative estimation of amorphous quinine in citrate of iron and quinine, especially as the mere detection of the former substance was of but little value. Amorphous quinine was present to a greater or less extent in every sample of citrate of iron and quinine manufactured; and, the more closely the Pharmacopœia process was followed, the larger would be the quantity of amorphous alkaloid produced. In a paper which he (Mr. Fletcher) read before the Conference at its last meeting, "On the Valuation of Citrate of Iron and Quinine," he described a method for the estimation of amorphous alkaloid in that preparation. In that paper he recommended that from the weight of the anhydrous alkaloid obtained from the citrate by extraction with ether, and drying at 120° C., the theoretical amount of 1-10th N. H₂SO₄ (requisite to effect its conversion into basic sulphate) should be added, and from the weight of crystallised sulphate obtained the amorphous alkaloid should be calculated by difference. Further experience with the process had shown him that it was not advisable to heat the alkaloid, at any rate not to so high a temperature as 120° C. previous to its conversion into basic sulphate, inasmuch as by that method a certain proportion of amorphous alkaloid was inevitably formed. He had proved this to be the case by operating upon the pure crystallised sulphate of quinine. By "pure," he did not mean even the best specimen of sulphate to be met with in commerce, but sulphate of quinine from which the einchonidine had been removed by five re-crystallisations. Taking an accurately-weighed quantity of such quinine, and dissolving in dilute sulphuric acid, precipitating the alkaloid with ammonia, dissolving in ether, drying the ether residue at 120° C., and re-converting into basic sulphate in the manner described, he found that there was a loss on the theoretical amount of from 5 to 10 per cent. Further than this, if the mother liquor from the crystals were examined, it would be found to contain a much larger amount of quinine than ought to be present in a cold saturated solution of the sulphate, and the ether residue, instead of being perfectly white, was straw-coloured and resinous, and possessed all the characteristics of amorphous alkaloid. It was, therefore, clear that the estimation of crystallisable sulphate should not be made upon an ether residue dried at a high temperature. In the face of the fact that traces of amorphous alkaloid were invariably present in the citrate, it seemed to him that Dr. De Vrij's process, being simply qualitative, might condemn as "sophisticated" a sample of that preparation which was in every respect genuine. There was, however, one very simple test which every pharmacist could apply for himself, and by means of which he would undertake to say that any sophistication of the citrate with amorphous quinine could be inevitably detected. He referred to the indication afforded by the palate. If a scale of citrate of iron and quinine containing an appreciable amount of amorphous alkaloid were placed upon the tongue the difference in the taste between that and the genuine preparation was so marked that with a little practice the pharmacist would be able to detect the admixture with the greatest certainty. The bitter of the two alkaloids was as distinct as, for example, that of aloes and quassia.

Professor ATTFIELD said that Dr. De Vrij's process might possibly be made quantitative.

Dr. SENIER wished to ask Mr. Fletcher if, on further experience of the process which he had described at the Sheffield meeting of the Conference, he had found the results satisfactory. For his own part he thought it was a matter of extreme difficulty to correctly calculate the amount of sulphuric acid requisite for the conversion of the alkaloid into basic sulphate. He would also like to inquire from Mr. Fletcher how it was he found the amorphous quinine produced in his experiments on the sulphate to be of a yellow colour.

Mr. FLETCHER said that although he was in the habit of constantly using the process, he had never found any difficulty in calculating the necessary amount of sulphuric acid with the greatest exactitude. Of course it was necessary that the acid should be carefully standardised, and also that the quinine should be perfectly anhydrous. As to Dr. Senier's second question, he should certainly expect that amorphous quinine, from whatever source obtained, and however pure, would be more or less coloured.

Mr. NAYLOR said that he had found Mr. Fletcher's process extremely useful. He had never met with the difficulty alluded to by Dr. Senier. On

the contrary, he found that the sulphate of quinine crystallised out with great facility, and he thought there could scarcely be a more satisfactory method of obtaining it in that form. There was one point in connection with this subject respecting which, as there were manufacturers present he should like to ask a question. He should be glad to know how it was the scales of different manufacturers varied so much in acidity? Some samples were strongly acid, whilst others, again, had scarcely any free acid present. Would it not be possible for makers to supply a more uniform preparation?

Mr. FLETCHER said that it might be well to point out that the citrate of iron and quinine most in favour with wholesale druggists, and, therefore, he presumed, with pharmacists, was that which dissolved readily, and formed a brilliant solution. Such citrate contained a much larger proportion both of citric acid and ammonia than were ordered in the Pharmacopœia process. He had quite recently been in correspondence with a wholesale house, to whom a customer had returned some citrate of iron and quinine, on account of its giving a precipitate when dispensed with iodide of potassium. On examining the scales he found that they were somewhat slow in dissolving, indicating less than the usual amount of free acid. The iodide of potassium, on the contrary, was distinctly alkaline, and under these conditions it was clear that the precipitation of part of the quinine as hydriodate was inevitable. A sample of Howari's citrate, which he had tested in this way, gave a similar result, and it must be evident that both the amount and colour of the precipitate would depend on the acidity of the citrate on the one hand, and the alkalinity of the iodide on the other.

Mr. GERRARD said he thought the discussion pointed to certain defects in the process which showed the desirability of some improvement. He was himself in the habit of using for dispensing a solution of the citrate not previously scaled, and certainly in this form there was less probability of the presence of the amorphous alkaloid.

Mr. GREENISH said that he should certainly expect to find a precipitate of hydriodate of quinine in a mixture containing citrate of iron and quinine and iodide of potassium.

Mr. HOWELL said he had frequently experienced the difficulty alluded to by Mr. Fletcher. He might say that Dr. Langdon Down, who was often in the habit of prescribing such a mixture, invariably ordered in his prescriptions a certain quantity of citric acid, with the view, doubtless, of preventing the formation of a precipitate.

Mr. HUGHES said the mixture with iodide of potassium had often been a source of trouble and perplexity to him, and he took it that one of the great objects of these meetings was that they might interchange ideas, and gain information of a practical character. He should, therefore, like to ask the gentleman who had introduced the subject what he would suggest as the proper method of proceeding.

Mr. FLETCHER said that, if the citrate dissolved slowly in water, it might be taken for granted that there was a deficiency of both citric acid and ammonia, and, if he were called upon to dispense such a preparation with iodide of potassium, he should add a small crystal of citric acid, or preferably, a little solution of citrate of ammonia containing an excess of citric acid.

Mr. GREENISH thought that any such addition on the part of the pharmacist was not legitimate.

Dr. SYMES said they had clearly seen that the preparation which formed the subject of the discussion was not a definite one. He recollected as one of his earliest dispensing experiences that, in dispensing citrate of iron and quinine with sal volatile, they rarely obtained a mixture which was twice alike when the productions of different manufacturers were used. If the citrate was very acid the mixture was nearly clear, but if otherwise it was thick and turbid. He could not endorse the remarks of Mr. Greenish as to the impropriety of adding, if necessary, a little citric acid or citrate of ammonia in this particular preparation, provided it did not dissolve in water. It was clear that they were apt to get the citrate from the manufacturer in different conditions. If, therefore, they simply remedied a defect in the preparation, they only exercised their skill as intelligent pharmacists.

Mr. UMNEY said that, nine years ago, he had pointed out in the *Pharmaceutical Journal* that citrate of iron and quinine, prepared strictly by the British Pharmacopœia process, would not yield a bright solution; and as a manufacturer he might say that he had always been in the habit of using about 2½ per cent. more acid than was directed by the Pharmacopœia.

Mr. GROSE asked whether the presence of that quantity of acid would be likely to liberate iodine in a mixture containing iodide of potash? The question involved in the suggestion of adding acid was whether pharmacists were justified in supplying the defects of manufacturers. This was similar to the other question, whether pharmacists were justified in neutralising spirit of nitre which had become acid before dispensing it.

Mr. SAVAGE thought that from this discussion it might be inferred that if chemists might not tamper with preparations, manufacturers should learn the lesson to send out such preparations in a condition fit to use.

Mr. GROSE said that the acidity of ferri ammon. cit. was often a difficulty. If prescribed with bicarbonate of potash an effervescence occurred, which sometimes resulted in the explosion of the mixture, perhaps damaging a dress or a suit of light liver.

NEW AND UNOFFICIAL PHARMACEUTICAL PREPARATIONS.

By C. Symes, Ph.D.

THE purpose of this paper was to bring before the Conference a subject of importance to practical pharmacists, namely the wide variation in the strength of many preparations frequently dispensed.

As illustrating this proposition, reference was made to the discussion which had occurred two years ago, at Dublin, as to the precise strength of the article that should be used when aq. flor. aurantii was prescribed; and it was found that in the absence of any authority, the usage of dispensing houses differed widely; some regarding that known as the "triple" water, others considering the "diluted" as proper to supply. Unfortunately, no satisfactory conclusions were arrived at, and the matter remains in an unsatisfactory state. This was a simple preparation, but other instances of a more important character were named, for which no authoritative or recognised formulæ exist—tincture of gelsemium, for example, which, according to a recent article in the *British Medical Journal*, varies in strength from 1 in 5 to 1 in 10, or 100 per cent., and there appears no evidence to show whether the stronger or the weaker is correct. Tinctures of jaborandi, eucalyptus, boldo, &c., may vary similarly. A dozen or more formulæ exist for the syrup known as chemical food (the original formula of Parrish not yielding satisfactory results), hence it varies in colour, density, acidity, and strength.

Medicinal hydrobromic acid is now largely prescribed, and for its preparation several formulæ have been published. Dr. Wade, who originated the idea of using it internally as a medicine, provides for 10 grains of combined bromine in the drachm; Dr. Fothergill's preparation is about half that strength, and Dr. Squibb's is a purer acid, containing 33·4 per cent. The weaker acid is the one generally used in this country, but it is not that with which the original experiments were made.

Fluid extracts are in the United States so prepared that a fluid ounce shall as nearly as possible represent one ounce of the crude drug. In Great Britain both official and non-official extracts vary so much that when a new drug is introduced half-a-dozen manufacturers may prepare fluid extracts from it of as many different strengths; the physician who prescribes and the pharmacist who dispenses it both being ignorant of the exact relation it bears to the drug. With these facts in view, the author considers it desirable that some standing authority should exist to give semi-official or official sanction to formulæ for tinctures, fluid extracts, &c., as occasion might arise, which would ensure greater uniformity, and provide a means by which many remedies could receive a far more satisfactory trial than they now do.

It was hinted that the Conference might consider the desirability of adopting some means for constituting such an authority either from its own members or partly so and partly from the Medical Council, if that body could be induced to take up the matter jointly with them.

Mr. GREGG, in support of Dr. Symes' suggestion, said that pharmacists, especially those in the country, experienced considerable inconvenience from these new remedies. The local medical men saw something recommended perhaps in one of the medical journals, and ordered it and the chemist who had to dispense the prescription often had no means of ascertaining exactly what was meant. He gave several instances he had met with in one of which the patient had died before the medicine ordered could be obtained.

Mr. GREENISH said one difficulty which such a committee would meet with would be the immense number of the new preparations introduced. Their name was legion, and their existence was generally a very ephemeral one. They were hardly in the market before they were out of it. If any committee had to consider these as they came up, it would have to be a permanent one. Referring to some of the instances which Mr. Symes had named, he said there ought to be no difficulty in the case of aq. flor. aurant. for instance, which had been discussed at Dublin. It was described as triple, and it seemed only common sense to understand that when orange-flower was ordered this should be diluted with 2 parts of water. He thought it a pity the Pharmacopœia should contain formulæ for simple solutions, such as syrup of chloral hydrate, which might just as easily be prescribed of the strength required, and prepared extemporaneously. The Pharmacopœia ought to have an appendix for new remedies, and another section of an equal number of pages, which could not be more appropriately described than by the term "Limbo"; but if all new remedies as they

came out were to have an official place, our pharmacopœias would become far larger than our family bibles.

Mr. HUGHES (Ilendilo) pointed out that wholesale houses were in the habit of preparing their specialties, and they naturally did their best to induce medical men to order them.

Mr. UMNEY said that he often met with difficulties of this kind. In such instances he always first searched the Pharmacopœia, and if that gave any process he followed that, unless his brains suggested a better. Next, he would examine foreign pharmacopœias, or the Year-books of Pharmacy. He found the Pharmacopœe Universelle a very useful work of reference. But still, they often met with cases where there was no authoritative formula. This tincture of gelsemium was an important instance, as it was a powerful medicine. He had been in the habit of making it in the strength of 1 to 5. A committee which should publish formulæ would certainly tend to bring about uniformity.

Mr. SAVAGE said this discussion confirmed the opinion that pharmacists should be better represented in the preparation of the next Pharmacopœia. He thought the President and Vice-President of the Pharmaceutical Society would make a good committee.

Professor ATTFIELD said the difficulty alluded to by Dr. Symes was felt in America as well as here. He and Professor Maisch had discussed the matter the previous day in the train, and had agreed that the doctrine of evolution might be trusted to deal with these numerous remedies. The fittest would survive. But the question remained, What was to be done with those that did survive in order to ensure uniformity of strength? More frequently produced editions of Pharmacopœias had been suggested. They had a new Pharmacopœia in the United States every ten years, and there was a party who thought they ought to have one every five years. Professor Maisch and other eminent pharmacists thought that a new Pharmacopœia every five years would give too much trouble to the pharmacist and the physician, but they proposed to meet the difficulty by appointing a standing committee, with power to consider the value of newly-introduced remedies, and issue a Pharmacopœia *appendix* every two or three years, and to give a place to the new remedies that proved worthy of survival in the decennial Pharmacopœia.

Mr. NAYLOR, in reference to querebracho, which Dr. Symes had mentioned, said that there seemed considerable doubt respecting the preparation of this, and it might be useful to mention that the form in which he believed it was generally used was as an aqueous fluid, two parts of which corresponded with one part of the bark.

Mr. LLOYD (Bridgend) said the difficulty would be somewhat lessened if wholesale houses would state the strength and dose of their preparations on the labels.

Mr. ANDREWS said that some medical men who ordered new remedies defined the strength of which they should be prepared, and it was desirable that this should more generally be the case. This random ordering of new remedies was a serious thing to the pharmacist. They collected to a large extent in the cupboards, and many of them were not wanted a second time.

Mr. SCHACHT sympathised with the difficulty which pharmacists experienced, but he could not sympathise with the suggestion that the Conference should appoint a committee with any authority in this direction. He thought such a duty, if it were to be undertaken, rather belonged to another body of more representative character. The object of the Conference, he took it, was merely to elicit opinion. It could not claim the ghost of authority.

Mr. MORRIS said the difficulty with regard to unofficial formulæ could not always be removed in the way suggested by Mr. Umney. Often several formulæ could be found for the same preparation. He agreed that a committee would to a great extent obviate the difficulty.

Dr. SYMES, in replying, said that these remedies were not really so numerous as chemists were apt to fancy they were. They caused a deal of trouble, and that made them appear numerous. But chemists must meet the trouble and deal with it. By ignoring it they did not get out of it. There was a great deal of grumbling about trade difficulties, but he took it that those would succeed the best who best knew how to meet those difficulties. It was not the duty of the pharmacist to strike a nail into the coffin of any of these new remedies. His duty was to prepare them, and it was desirable that uniformity should be attained as far as possible. As an instance of the variations now to be met with, Mr. Umney had stated that he prepared tincture of gelsemium of strength 1 in 5. He (Dr. Symes) had always prepared it 1 in 10, and he had known it produce serious toxic effects in that strength when given in full doses. Mr. Schacht, he supposed, referred to the Pharmaceutical Council as the body which should undertake such a work as this. But that Council were always most particular to avoid any responsibility of this kind. The Paris Pharmaceutical Society had published a series of formulæ of unofficial preparations, and he was not sure that a similar thing had not been done in America. Besides the books named by Mr. Umney there was one which he had often found useful, and that was the *Homœopathic Pharmacopœia*. Whenever any medicine of a name familiar to homœopaths was required, it might be taken as the rule that if prepared from the dry plant 1 in 10 was the proper strength.

The President mentioned Dorvault's "Officine," and Stillé and Maisch's "Dispensary" as books of great service to the pharmacist.

THE CULTIVATION OF CINCHONA CALISAYA.

By J. E. Howard, F.R.S.

THE author described the circumstances of the death from canker of a small *Calisaya Anglica*, grown in his own conservatory, and concluded that the canker was caused by a root reaching the subsoil. In Java, where the cinchona grows most luxuriantly, the soil is very deep and rich, and the disease does not occur. In Ceylon, where the soil is shallower, it appears when the roots reach the subsoil.

Rich soil is not always needed to produce rich bark, for bushy, spindly trees on the Nilghiris have yielded bark of excellent quality.

Some details of the Java cinchona plantations were then given from the *Ceylon Observer*. These were published on page 359 of our August issue.

Some extracts were given from a private letter from Mr. Ledger. In 1849 Mr. Ledger suggested to a Bolivian planter the idea of cultivating cinchona on a mountain slope where, in his father's time, rich natural bark had been gathered. Since then many thousands of trees have been planted, and another planter has taken up the enterprise. Since 1875, 500 quintals, selling at \$200 a quintal, have been gathered yearly, and some of this is believed to have entered our market.

Mr. Dobree's estimate of the increase in the production of Ceylon cinchona was quoted from the *Ceylon Observer* (see THE CHEMIST AND DRUGGIST, August, p. 359), and was considered rather extravagant, and the paper concluded with some discussions of the species which yield the most valuable barks and are best suited for cultivation.

After the reading of this paper Dr. Paul exhibited and described a specimen of a peculiar cinchona bark, which had lately come into the market from America, and which from its appearance would be generally rejected, but which was found on analysis to yield $2\frac{1}{2}$ per cent. of quinine, and was exceedingly good, both for the use of pharmacists and for manufacturers. In reply to the President, Dr. Paul said that large quantities of this bark seemed to be available, and, in reply to Mr. Wellcome, he said that he had only been able to trace its source to New Granada.

Mr. WELLCOME said he had lately met with a bark similar to this in Germany, where it had received considerable attention as a curiosity. It had a resemblance to cherry bark, and he thought it was of the same origin as that to which Dr. Paul had alluded. Hesse had assayed it, and found it to contain 2 per cent. of quinine. But all that bark had come by way of Peru.

Mr. UMNEY said it might be deduced from Mr. Howard's paper that the time would come when the Government would be beaten in the growth of bark by private enterprise, and he presumed that in not so many years we should have a very cheap supply of cinchonas.

Dr. SYMES said that Dr. Paul's statement proved what he had himself heard from old bark buyers, that the land-marks by which they used to distinguish the qualities were disappearing, and that they would have to trust more and more to chemical analysis.

Dr. PAUL confirmed this, and remarked that the yellow bark, which was formerly considered the best, was now disregarded, and contained but very little quinine, and sometimes none at all.

IPECACUANHA WINE.

By J. B. Barnes.

THE author having referred to Dr. Dyce Duckworth's paper read at an evening meeting of the Pharmaceutical Society in March, 1872, entitled "Notes on the Pharmacy of Ipecacuanha," and to the plan proposed by Mr. Carteighe for the preparation of the acetum and the oxymel of ipecacuanha, suggested the following modification of that process:—

To evaporate the acetum ipecacuanha (Carteighe) to dryness, macerate the dry extract in a pint of sherry wine for 48 hours, and filter. This process gave a rich brown solution, which, after keeping for eight months, had not thrown down the unsightly muddy sediment so well known with ipecacuanha wine, B.P., which has been kept beyond a few weeks.

The wine had given a white crystalline deposit of cream of tartar, but this was very different from the muddy deposit of ipecacuanhat of emetin with cream of tartar, which occurs in the wine as now used.

This new wine is slightly acid, but to so trifling an extent as to be not at all likely to interfere with the action of alkalies which may be prescribed with it.

A four fluid drachm dose proved an efficient emetic when given to an adult.

Mr. GREENISH said the formula for ipecacuanha wine in the British Pharmacopœia was not a satisfactory one. He had observed that the deposit which fell in the wine partook of the character of cells, and he thought was due to fermentation. He apprehended that Mr. Barnes' paper was founded on one which had been read some years ago before the Pharmaceutical Society by Dr. Duckworth. He remembered that it had been then contended that there would be a difficulty in the use of acetic acid from the fact that carbonate of ammonia was frequently prescribed with ipecacuanha wine. The objection would not apply so strongly to the process recommended by Mr. Barnes, because most of the acetic acid would be lost in evaporation. But, however small the quantity remaining, there was that objection. He regarded the paper, however, as a very suggestive one, and he hoped that in a future Pharmacopœia a formula would be given for an ipecacuanha wine which would keep, which we had not at present.

This ended the papers and discussions of the first day's Conference. In the evening a large party, comprising most of the visitors, had an interesting trip to the Haford copper-works of Messrs. Vivian & Sons, near to Swansea, and the handsome tinplate-works a few miles further off. The processes witnessed included the smelting of the ore and the casting of the metal into ingots and rolling it into sheets at the Haford works, and the skilful coating of their iron plates with tin at the Landore establishment. At both works foremen conducted the party, and courteously replied to the multitudinous curiosity of their numerous interlocutors.

WEDNESDAY, AUGUST 25.

THE second day's Conference was opened by the President at 10.30 A.M., who called on Mr. Brady to give his

NOTES ON A JOURNEY EASTWARD.

Mr. BRADY apologised for having no written paper, explaining that ten days ago he had not expected to be present at this meeting. Details of a journey, occupying the best part of a year, could not very easily be compressed into the time to which he must limit himself, and he therefore decided to centre what he had to say in observations on matters of pharmaceutical interest noticed in the island of Ceylon. Sailing in the February of last year from Marseilles he described very cursorily the journey, only mentioning the Island of Socotra with its bitter associations, which, he said, its appearance from the sea did nothing to dispel. The appearance of Ceylon, with its luxuriant tropical vegetation, was described as seen from the magnificent railway from Colombo to Kandy [which was mentioned by our *Roving Correspondent* in this journal in December, 1879]. In Ceylon all the talk was of the coffee disease. This was due to a fungus which had been first observed some three or four years ago, and the ravages of which were estimated as a loss to the colony of 2,000,000*l.* a year. The greatest devastation was effected in plantations 2,000 to 3,000 feet above the sea level, and it was probably due to the plan of cultivation adopted, which consisted in taking everything possible out of the ground and putting little in. The planters were not unwilling to manure their grounds, but the system of caste rendered it almost impossible to obtain labourers who would undertake any such duty. The result of the disease had been to ruin many of the old plantations, and had indirectly given an impetus to the cultivation of cinchona, cacao, ipecacuanha, and tea. Mr. Howard's paper, read the previous day, had forestalled much of what he might have said respecting the cultivation of cinchona, and his only right to speak on the subject was that he was describing what he had himself seen. To see the cinchona plantations he went from Kandy to the Government nursery at Hakgala, crossing the Rhaboda pass 7,500 feet above the sea level. There, at only 6° from the equator, he was never more pleased in his life to meet with a blazing fire. That night some of the eucalyptus trees in the gardens had been seared with frost. The *Eucalyptus globulus* grows in Ceylon at from 2,000 to 6,000 feet above the sea level. His information in regard to cinchona was mostly obtained from Mr. Thwaites, of the Hakgala gardens, and from Mr. Ferguson, the proprietor of the *Ceylon Observer*. Some of the figures they had given to him differed notably from those which

Mr. Howard's correspondent had furnished. Instead of 6 lbs. as the produce of a succirubra tree, the Hakgala gardens showed that a tree 14 years old only yielded an average of 3 lbs. of bark, and the speaker had himself measured the stumps of trees, 14 years old, which had been recently cut down and found it 7 inches in girth. Mr. Thwaites does not believe that any of the plants hitherto grown in Ceylon are true calisaya. They had produced three entirely different varieties. But the whole question of cinchona species was a riddle. Weddell and others enumerate 40 species, whilst Kuntze has reduced the number to four. Perhaps one class do not understand the same by the term species as the other. In regard to the area under cultivation, too, Mr. Ferguson estimated that the area at present under cinchona cultivation in Ceylon does not exceed 6,000 acres, and he calculated that in four or five years' time there might be a total of about 5,000,000 trees in the island. This estimate, Mr. Brady remarked, differed notably from that of Mr. Howard's correspondent. Mossing has not proved successful in Ceylon; it had only provided a harbour for ants. Canker had also proved a source of great difficulty.

Cardamoms.—This cultivation was extensively carried on at the present time in Ceylon. The plants were grown from bulbs, and yield two large crops and one small one, and then have to be rooted up and new plants put in.

Vanilla.—The cultivation of this plant has been commenced in Ceylon on a large scale. Very excellent tea is also produced there.

Cinnamon is grown chiefly on the south-west coast and near the sea. Mr. Brady gave particulars of its mode of culture and preparation for the market, and also criticised the primitive manner in which the oil was distilled.

The expression of the cocoanut oil was also referred to, and mention made of the incredulity of the natives when told that that which they knew only as a limpid oil was a solid fat in England.

Very brief allusions to pharmacy in China and Japan concluded this lecture, and a curious earthenware still, used by the Japanese for the distillation of peppermint, was exhibited.

A short discussion followed this communication.

Mr. GREENISH, referring to Mr. Brady's remarks as to the exhaustion of the soil by the growth of the coffee plant, narrated some of his own observations in Portugal, where the system of nourishing the soil was not properly understood.

Mr. WOOTTON suggested that Mr. Brady might favour the Conference with an independent opinion in reference to the existing difficulties in the way of the importation of English chemicals in Japan.

The PRESIDENT thought it was desirable to limit the discussion to the subjects which Mr. Brady had treated.

Mr. UNNEY said no product in the London market was so uncertain as cinnamon oil. He feared the leaf sometimes found its way into the still.

Mr. BRADY briefly replied.

NOTE ON INDIAN HENBANE.

By T. Greenish.

THE official biennial henbane leaf has of late years become very scarce in this country, and it was with considerable interest that the author undertook the examination of a small sample of henbane leaf sent from India by Dr. Dymock. It arrived in a tin box without any particulars as to its being the produce of the annual or biennial plant, place of growth, character of soil, the result of cultivation, or otherwise. On removal from the tin the leaves had a clammy feel; they possessed an intense odour, very persistent on the hand, and generally stronger than that of ordinary henbaue.

Dried at 80° F., it lost 7 per cent. The odour passed off almost entirely in the process of drying.

A tincture prepared by maceration was a brown-olive, whereas the official tincture is olive-green, and the colour more intense. A little added to water produced no opalescence, and gave only a tinge of colour, the official tincture, on the contrary, produced considerable opacity, which, on the addition of a little liquor potasse, disappeared.

In the general structure of the leaf, the author found no very material difference.

Extracts made from the two tinctures were relatively 3.43 for the Indian henbane, as compared with 4.20 for the British Pharmacopœia.

It might be worth while to make a tincture with the leaf without previously drying it, so that the strong odour which is probably due to some volatile principle, and also the acidity, might be retained, and probably increase the therapeutic value of the product.

Mr. REYNOLDS said the subject of henbane was one of increasing rather than of diminishing interest. A few years ago henbane was under a cloud as a remedy, but the introduction of hyoscyamine, by Merck, of Darmstadt, had proved the value of that medicine as a sedative when a definite preparation could be obtained. Experiments, which had recently been carried out at the West Riding Asylum had proved that disappointment with this medicine had been probably due to the use of hyoscyamine made from the root and not from the leaf. The indication of any new source of henbane was likely to be as important as the discovery of a new source of morphia.

Dr. SYMES said that notwithstanding Mr. Greenish's somewhat disparaging remarks on new remedies yesterday, his remarks to day tended to show the importance of well examining new drugs. He believed that it had been observed that a tincture made from the English annual plant did not become opalescent when mixed with water, whilst that from the biennial plant did so. As an illustration of the different strengths of hyoscyamine Dr. Symes mentioned a case which he had observed, in which the grain was administered without any apparent effect, but when dispensed a second time from a new stock it produced partial blindness and a temporary illness in the patient.

Mr. MASON asked if Mr. Greenish had examined German henbane.

Mr. UNNEY questioned the supposed superior activity of the biennial plant over all others. This Indian henbane, he was pretty confident, was an annual; the German, he believed, was an annual. Unless new sources of supply are found henbane would be dearer and dearer year by year.

Mr. GERRARD said that, when the specimens from the India Museum were being distributed, he had obtained some of the Indian henbane, and had experimented with it. His experiments had led him to the conclusion that the Indian variety corresponded very closely in respect to the quantity of alkaloid with the English biennial. Mr. Gerrard further mentioned that there was now in the market a Japanese extract of henbane of a brownish colour, which seemed to yield a large quantity of alkaloid matter.

Mr. GREENISH, in replying, said he had not used any German henbane. As to the possibility of supply of Indian henbane he believed that Mr. Holmes was at present in correspondence with Dr. Dymock on the subject.

Mr. BRADY expected that, before many years, we should have a great many Japanese products in our markets. The Japanese were very ambitious to compete with Western nations in the manufacture of all sorts of preparations, and the Government did all it could to foster native industry.

FURTHER NOTES ON PETROLEUM SPIRIT.

By A. H. Allen, F.I.C.

THIS paper was a continuation of one read at Sheffield last year. The following table summarises the author's tests for distinguishing petroleum spirit, shale naphtha, and coal-tar benzol.

Mode of Treatment	Petroleum Spirit	Shale Naphtha	Coal-tar Benzol
a. Sp. gr. of sample	·690	·701	·876
b. Boiling point of sample	65° C.	66° C.	81° C.
c. Solvent action on coal-tar pitch	Very slight solvent action on pitch; liquid but slightly coloured even after prolonged contact	Behaves similarly to petroleum spirit	Readily dissolves pitch, forming a deep brown solution
d. Behaviour of the sample when three measures of it are shaken with one measure of fused crystals of absolute carbolic acid	No apparent solution. For the real nature of this reaction see "Year-book of Pharmacy," 1878, page 578. The liquids are not miscible	The liquids form a homogeneous mixture	The liquids form a homogeneous mixture

Shale naphtha is the highly volatile and inflammable liquid obtained as a secondary product in the manufacture of paraffin, wax, and burning oil from the bituminous shale of the South of Scotland. In physical properties it presents the closest resemblance to petroleum spirit; both liquids are known in commerce as "benzoline," and are usually said to be identical in chemical composition. Its behaviour when

treated with fuming nitric acid is quite different from that of petroleum spirit.

A SAMPLE OF CAYENNE PEPPER.

By T. Greenish, F.C.S.

THE sample was placed in the author's hands by Mr. Holmes for microscopical examination. It had been sent to him as an article recently introduced.

This sample, though possessing, to the naked eye, all the external characters of the Natal red pepper, was entirely devoid of pungency.

The question arose, how had this sample been deprived of its pungency, so as still to retain its colour.

From subsequent information it is believed that the more brilliant samples of cayenne, deprived of pungency, are used for giving the special plumage to canaries, and the sample in question was most probably one intended for this purpose, and not an adulterant of commercial cayenne by-products.

Mr. BRADY had seen cayenne pepper of a character similar to that shown by Mr. Greenish, which was used very largely in Hungary for flavouring many dishes.

Mr. CHIPPERFIELD asked what was cayenne pepper. He had supposed that it was capsicums ground and mixed with a certain proportion of salt to make them keep. Also, he asked, how was it that it was always red, as he had seen green and yellow (ripe) chillies as well as red ones.

Mr. ANDREWS asked if it was possible that this sample had been used for the preparation of soluble cayenne pepper? Even if it had been, it was probable that some pungency would have been left; but here there was none whatever.

Mr. GERRARD recently made some experiments in the preparation of extract of capsicum, which had been used for certain skin diseases. He had found very variable results in different samples of capsicum. Sometimes resinous and sometimes fatty matter predominated. Formerly he had understood, and he believed Mr. Greenish once held the opinion, that capsicum would not produce a blister, but he had now found that it did so.

Mr. CLARK (York) contradicted the statement made by a previous speaker that cayenne pepper always contained salt.

THE INTERNATIONAL PHARMACEUTICAL CONGRESS.

Just before the adjournment for luncheon the PRESIDENT introduced the subject, and Mr. GREENISH gave a few further details respecting the probable meeting of the International Pharmaceutical Congress in London. This communication was only a repetition of the statements which have already been published as to the past history of the Congress, and its great object of compiling an International Pharmacopœia.

THE GREEN EXTRACTS OF THE PHARMACOPŒIA.

By W. A. H. Naylor, F.C.S.

THIS paper was intended to convey the experience of a laboratory in reference to the preparation of the above. The observations were based chiefly on belladonna. The first point urged was that, the plant having been obtained, no time should be lost in working it, but while in the fresh condition it should be stripped of its leaves and flowering tops. If left in bundles, the plant would be liable to ferment.

Mr. Squire's observations, made 20 years ago, showed that an extract made from all the soft parts of a plant would keep better than if made from the leaves only as ordered in the Pharmacopœia. Mr. Naylor had little hesitation in assigning the preservative properties apparently resident in the peduncle or young stems mainly to the gummy matter invariably present in these parts of the plant. In addition to gummy matter, however, there exist in the young stems inorganic salts, which exercise an antiseptic influence over putrescent substances. He had found that the addition of but a very small proportion of gum to an extract, which when fresh is known readily to mould, will materially retard the period of decay. He did not recommend such an addition in making the Pharmacopœia extracts—an addition, moreover, for which there should be no necessity.

Bruising the "leaves and flowering tops" may be accomplished on the small scale in a bell-metal or stone

mortar, but the operation is more easily and efficiently performed by stone runners, as in a grinding-mill, as it is conducted by wholesale manufacturers.

The leaves, &c., should next be enclosed in a haircloth and submitted to pressure. If the material has not been perfectly broken up, little spaces will be formed, which will render the extraction of the juice difficult. From the general appearance of the juice, the practised eye can presage the quality and, to some extent, the yield of the final product. Neither the watery juice of a bright green colour, nor the deeply brown, in which the chlorophyll readily subsides, will produce an extract of good quality. The reason of this is to be found in the fact that these characters belong respectively to plants which have not arrived at maturity and those which have advanced beyond this stage. That juice which is intermediate in quality between these two—where the bright green of the one, by blending with the other, is tempered into a dull green—will invariably yield a product possessing in the highest degree the characters of a good extract. The specific gravity of belladonna-juice ranges from 1015 to 1035; the average may be taken at 1020, and in an ordinary season a ton of the leaves and young stems would give 130 gallons of juice.

The juice being strained, it is next heated to 130° F., and the chlorophyll which separates removed by filtration through calico. The strained liquor is then heated to 200° F. to coagulate the albumen, and again filtered. It is well to remove the scum which rises to the surface during the heating of the liquor.

The author next enumerated the arguments for and against the retention of the albumen, after coagulation, in the extract. If the juice of the young stalks of the stem has contributed to the final product, the retention of the coagulated albumen does not interfere with the keeping properties of the extract. It had been objected that the albumen, being an inert substance, dilutes the extract, increases the yield, and adds to the remuneration of the manufacturer. But there is no conclusive evidence to show that the albumen is devoid of physiological action, or that it may not at least exercise a modifying or controlling influence, so that in rejecting what seems superfluous we may be losing a valuable ingredient. The increase of yield would only be in the ratio of about 1 oz. of moist albumen to the pound of finished product. Respecting the evaporation of the extract to a pilular consistence, it was noted that in the official directions there is no mention of the kind of apparatus to be employed. It may be presumed that a wide, shallow vessel such as is ordinarily used for such purposes was intended. The heat applied should be near to, not necessarily below, but not exceeding, 212° F.

Mr. Naylor was quite aware that the operation of making an extract could easily be performed by the pharmacist, but he gave several reasons which led him to the conclusion that juices evaporated *in vacuo* yielded superior products. First, if evaporated in an open dish, the resinous and gummy matters are subjected to a kind of oxidation, occasioning a deposit not again re-combined; secondly, volatile constituents are more likely to be driven off; and thirdly, in some instances, notably in regard to taraxacum, the flavour is decidedly altered, by evaporation in an open dish, from its natural bitter to a sickly, sweetish taste.

The author prefers to add the chlorophyll when the juice has reached the consistence of a thick rather than a thin syrup, and the chlorophyll should first be rubbed through a fine sieve.

He mentioned that the yield of extract from belladonna plant varies considerably, but 80 lbs. to 90 lbs. per ton might be taken as an average result.

Mr. PLOWMAN expressed his appreciation of the practical value of the paper, and remarked on the evident importance of rubbing the chlorophyll through a fine sieve, so as to obtain a smooth extract. Unless something of the kind were done pellets would form. He would like to ask Mr. Naylor whether he had reason to think that gum was ever added to fresh extracts with a view to preserve their albumen. He also asked whether Mr. Naylor had made any experiments in support of the supposition that albumen might have a modifying influence on the medicinal properties of the extract. Also, whether he had ever found any of the alkaloid adhere to the albumen which separated either before washing or after. It struck him that the proportion of 1 oz. in 16 oz., which

was 6 per cent., was a rather considerable quantity of inert substance to leave in the extract.

Mr. HUGHES (Llandilo) hoped wholesale houses would bear in mind the importance of sending out extracts of a consistence fit for making pills.

Mr. GREENISH suggested that the apparent keeping powers of the gum might not really be due to that cause. It might be that an extract made from the leaves only contained a larger relative proportion of vegetable albumen, and was, therefore, more prone to decomposition.

Professor ATTFIELD said that Mr. Naylor had assigned to the inorganic salts present, the chlorides of potassium and sodium, a probable share in the preservation of the extracts. He had some time ago made some investigations on vegetable juices, and he found that the chlorides present were invariably those of potassium. He asked if Mr. Naylor's experience coincided with this.

Mr. NAYLOR said he believed gum was sometimes added to extracts, but he had no positive evidence. His experiments were not complete as to the retention of any alkaloid by the albumen, but in the case of conium he had not been able to find any trace on the washed albumen. The leaf, no doubt, contained a larger relative proportion of albumen than the young stalks, but he had proved as a fact that the addition of gum did exercise an antiseptic influence. In reply to Professor Attfield, the chlorides he had found were almost always present as potassium. He had found only traces of sodium.

THE PRESENCE OF ARSENIC IN TINCTURE AND SOLUTION OF PERCHLORIDE OF IRON.

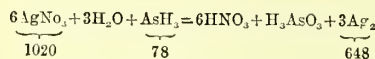
By F. J. W. Fletcher, F.C.S.

THE author enumerated several observations of the presence of arsenic as an impurity in pharmaceutical preparations, and to that list he said he had the melancholy satisfaction of contributing an addition. Having detected arsenic in samples of hydrochloric acid, many of which had been sold as pure, he thought that possibly a considerable portion of the liquor ferri perchlor. of pharmacy prepared with similar acid might contain arsenic. This had proved to be the case in samples of the liquor, and also of the tincture, which had been obtained from various eminent dispensing houses. In one instance the proportion of 33·8 grains As_2O_3 in the 100 fluid oz. of the liquor were detected. The other instances given showed 10, 12, and 13 grains per 100 fluid oz. of liquor.

THE GRAVIMETRIC ESTIMATION OF MINUTE QUANTITIES OF ARSENICUM.

By F. W. Fletcher, F.C.S.

AFTER pointing out that the various processes in use for the estimation of arsenic, including those of Levöl, Rose, and Herapath, are inapplicable to the determination of minute traces of this substance, the author described a method he had devised for the purpose, founded upon a reaction first observed by Soubeiran, viz., that when a stream of arseniuretted hydrogen is passed through a solution of nitrate of silver, a precipitate of metallic silver is obtained in accordance with the equation:—



From which it is seen that for every 75 parts of arsenicum obtained in the state of AsH_3 , no less than 648 parts of silver are thrown out of solution. "In other words, when the amount of arsenicum to be estimated does not amount to more than $\frac{1}{3}$ milligramme (or about $\frac{1}{1000}$ grain) the weight of the silver precipitate is so large as to be capable of accurate determination on any balance of average delicacy."

The author's apparatus consists of a hydrogen flask connected with a series of bottles containing decinormal solutions of lead acetate and silver nitrate. When the arsenical solution is added to the hydrogen flask arseniuretted hydrogen is passed into the solution in place of pure hydrogen. This decomposes the silver solution, and by weighing the precipitate of silver the proportion of arsenicum is estimated. One part of silver corresponds to 1157 of arsenicum, or to 1527 of arsenious acid. By testing in this way with known quantities of As_2O_3 such results as the following were obtained:—00292 gramme gave 00235 to 00241 gramme, 00584 gramme gave 00525 and 00519 gramme, 01168 gramme gave 01075.

The other substances which might form gaseous compounds with hydrogen were antimony, sulphur, tellurium,

selenium, and phosphorus. Antimony should be especially sought for, phosphorus might be converted into phosphate, the rest would be arrested by the lead.

The author also described experiments by this method, whereby traces of arsenic had been estimated in subnitrate of bismuth, sheep's stomachs, &c.

Mr. PLOWMAN had noticed that Mr. Fletcher had kept his apparatus going for five to ten minutes before he had dismantled it. In some similar experiments he (Mr. Plowman) had found that all the arseniuretted hydrogen could not be given off in anything like five minutes. He had found five hours, and even five days, insufficient, and even at the end of a week he could discern traces. Of course, the question was whether the formula shown by Mr. Fletcher exactly indicated the nature of the chemical change involved.

Professor ATTFIELD said it had occurred to him that Mr. Fletcher might find himself on the horns of a dilemma in this process. If it was conducted too rapidly he might not get all the arsenicum, and if it was conducted too slowly he might get some silver. Still it was astonishing that he should get such close results as he had done with such minute quantities. But it was to be noticed that in some of the instances given he did not get within 10 or 20 per cent. He might add that a very large number of substances, even common table salt, contained traces, of course utterly insignificant traces, of arsenicum.

Mr. SCHACHT thought Mr. Fletcher had spoken, if not disparagingly, at least with hardly sufficient respect, of Dr. Herapath's test, the results of which he had seen, and believed it was generally regarded as very reliable.

Mr. REYNOLDS mentioned a recent case of arsenical poisoning from wall-papers, in which it would have been advantageous if the quantity of arsenicum could have been described more definitely than as "traces."

Mr. ALLEN said that he thought Mr. Fletcher had shown that the process he had described was capable of giving results of extraordinary accuracy. It was all very well for Mr. Schacht to recommend Herapath's method, but the point of Mr. Fletcher's paper was, that by determining the silver precipitate, which was nearly nine times the weight of the arsenicum, he could estimate quantities of the latter which by Herapath's process would be quite unweighable. He would suggest in place of the hottles used by Mr. Fletcher a series of bulb tubes to contain the silver solution. There would then be no possibility of losing any arseniuretted hydrogen, and the adaptability of the process to the estimation of larger quantities of arsenic might be greatly extended. A great point in favour of Mr. Fletcher's process was that the whole of the arsenious acid would be contained in the silver solution, in which, of course, it could be estimated by some other process, and the accuracy of the result thus checked. With regard to the detection of arsenic in solution of perchloride of iron, he did not know exactly which method was adopted in the Pharmacopœia, but he supposed that if the process of dissolving iron in nitric acid were followed the arsenicum ought to be driven off.

Professor ATTFIELD said it was no doubt a very good result to get 23 milligrammes from the original 29 milligrammes. But his doubt was whether, if 29 grammes had been used, would the test have given only 23 grammes. Then the error would have been serious.

Mr. FLETCHER said, in reply to Mr. Plowman, that experience had shown him that the time indicated—viz., from five to ten minutes—was quite sufficient to ensure the absence of any appreciable quantity of arsenic. The equation by which he had represented the reaction might or might not express the whole decomposition, but that was immaterial, provided the ignited precipitate indicated, as his experiments had shown, the relative weight of arsenic. He regretted that Mr. Schacht should have interpreted any of his remarks as reflecting disparagement on Dr. Herapath's process. He considered the latter extremely valuable, and, in fact, it was Herapath's method which had suggested the process he had described. He (Mr. Fletcher) thought the point was rather removed from Professor Attfield's criticism, when it was remembered that he had distinctly stated that he did not recommend the silver process when the amount of arsenic was sufficiently large to be estimated by the magnesia method; but considering that in many of his experiments the weight of arsenicum did not exceed more than two or three milligrammes, he thought the results were not so bad.

Professor ATTFIELD: They are very good.

EMULSIONS.

By A. W. Gerrard.

THE author had made some 40 experiments in the preparation of emulsions with the mucilages of tragacanth and acacia, and likewise with their powders. Previous experiments had proven that where honey, yolk of egg, and almond-powder were recommended for special purposes, acacia or tragacanth answered equally well or better.

The conclusion arrived at was altogether in favour of powdered gum acacia, which should be of the best quality and almost white.

Mr. Gerrard prepared a castor-oil emulsion before the Conference with perfect success, and he then gave the following formula, urging strongly that the directions should be exactly followed, the liquids accurately measured in separate measures, mixed in a dry mortar, and no rule of thumb admitted.

Emulsion of Cod-liver Oil.

Cod-liver oil	4 ounces
Essential oil of almonds	4 minims
Powdered gum acacia	1 ounce
Syrup	1 "
Water	to 8 ounces

Mix the gum with the oil, then place on the mixture 2 ounces of water, and stir till the emulsion is formed, then add the remainder, water, essence, and syrup.

Emulsion of Castor Oil.

Castor oil	4 drachms
Powdered gum acacia	80 grains
Essential oil of almonds	1 minim
Simple syrup	2 drachms
Water	to 2 ounces

Mix the powder with the oil, then add 2 drachms of water, and stir till the emulsion is formed, add the remainder, water, syrup, and essence.

Emulsion of Turpentine Oil.

Oil of turpentine	4 drachms
Powdered gum acacia	2 "
Syrup	2 "
Water	to 2 ounces

Mix the powder with the oil, add $\frac{1}{2}$ ounce of water, and stir till the emulsion is formed, then add the remainder of the water and syrup.

Oil of turpentine is considered one of the most troublesome bodies to emulsify; prepared by this form there is no difficulty.

Emulsion of Balsam Copaiba.

Balsam of copaiba*	3 drachms
Powdered gum acacia	3 "
Simple syrup	6 "
Water	to 6 ounces

Mix the powder with the balsam and add 6 drachms of water, then stir till the emulsion is formed, gradually add the remainder of the water and syrup.

Emulsion of Resin of Copaiba.

Resin of copaiba	2 drachms
Rectified spirit	4 "
Powdered gum acacia	4 "
Water	to 6 ounces

Dissolve the resin in the spirit, add the powdered gum, and mix well, add now an ounce of water, stirring till the emulsion is formed, make up to 6 ounces with water.

Emulsion of Balsam of Peru.

Balsam of Peru	3 drachms
Powdered gum acacia	2 "
Simple syrup	6 "
Water	to 6 ounces

Rub the powder well with the balsam, add 3 drachms of water, and stir till the emulsion is perfect, then add the remaining water and syrup.

In emulsions containing resins or bodies heavier than water, there is generally a sediment formed; it is so with the two previous forms, but there is no aggregation into a hardened mass, and a slight shake of the bottle puts all right again.

Emulsion of Chian Turpentine.

Chian turpentine	2 drachms
Ether	4 "
Powdered gum acacia	2 "
Water	to 6 ounces

Dissolve the turpentine in the ether, and filter, washing the filter with a drachm of ether, mix well with the gum, and add $\frac{1}{2}$ ounce of water, stirring till the emulsion is perfect, lastly add the remaining water.

The PRESIDENT remarked on the practical character of this paper.

Mr. GREENISH knew the difficulties which occurred in the preparation of emulsions, and had seen the colour come into the cheeks of assistants after working hard at an unfamiliar emulsion for some time. The observation of the superiority of gum acacia for emulsions was not new. It had come from across the Atlantic, and he (Mr. Greenish) had thought that there

could not have been much more to be said on the matter. His own experience confirmed that of Mr. Gerrard that tragacanth was not suitable for emulsions. A microscopical examination of emulsions made by the two forms would show the difference. There was also an inferior kind of gum acacia in the market, which was not soluble, and which made an emulsion of a character similar to one made with tragacanth. It was important to use the finest gum acacia.

Mr. SAVAGE thought the merit of Mr. Gerrard's paper consisted in the definite formulae which he had worked out for emulsions of the various oils, &c.

Mr. COTTELL gave the formula of an emulsion which he prepared on a large scale, and which he said kept perfectly. He takes 24 eggs, 6 oz. mustard, 2 lbs. crystallised brown sugar, and works these up till a cracking noise is heard; then he adds gradually 64 oz. of the finest sublimed oil and 4 pints of vinegar, with 3 oz. Tarragon vinegar, and the necessary spices.

Mr. WARD asked Mr. Gerrard if he had kept any of his emulsions a whole year. He had found some keep very well for three or four months, but were affected by change of temperature.

Mr. GERRARD said his object had been to show the simple way in which gum acacia could be used for emulsions all round. He was quite aware that acacia had been previously recommended, but he did not know that exact formula had been previously given. He had investigated the subject, and thought it would save other chemists some trouble if he laid before them the results of his observations. He had found it better to use a pestle and mortar than to mix the substances in the bottle. In that latter case the oil was liable to adhere to the sides of the bottle, and prevent perfect emulsion. His experiments had not extended to more than three months.

DETERMINATION OF THE STRENGTH OF ALCOHOLIC SOLUTIONS OF CHLOROFORM.

REPORT ON COMMERCIAL SPECIMENS OF SAL VOLATILE AND CHLORIC ETHER.

By J. C. Thresh, F.C.S.

MR. THRESH had sent a letter to about 100 chemists, including the heads of most of the best-known dispensing establishments, asking them what they were in the habit of dispensing and retailing when chloric ether (eth. chlor. or sp. eth. chlor.) and sal volatile (sp. ammon. co. or sal volatiliss) are prescribed or asked for.

The replies showed that 27 firms used sp. chlorof. B.P., 11 used Duncan's chloric ether only, 14 used a solution of chloroform in alcohol stronger than the B.P.; 6 others who replied used special products of their own.

Respecting sal volatile, 44 employ sp. ammon. arom. B.P., exclusively, both in dispensing and retailing; 6 use sp. ammon. co. P. L., 1836; 6 use special preparations of certain makers. Many chemists, the author added, invariably use sp. ammon. ar., B. P., for dispensing, but retail special preparations as sal volatile.

Mr. Thresh had also obtained samples of chloric ether and sal volatile from manufacturers or large wholesale houses, with three from retail houses.

All the firms to whom he wrote sent two or more samples, in many cases with replies explaining what course they usually followed under the circumstances. Many, for chloric ether, supplied Duncan's preparation; others "special distilled products"; others the B.P. sp. chloroformi; and others, solutions of chloroform in spirit, stronger than the B.P. preparation. The samples obtained were 20 in number, sp. gr. from .861 to .922, and in percentage of chloroform (by volume) from 2 to 12 $\frac{1}{2}$ per cent. He was rather surprised at the small percentage of chloroform contained in the distilled "chloric ethers." There seems to be an impression abroad that this preparation, though more miscible with water than the B.P. sp. chloroformi, is richer in chloroform. This is a fallacy. The preparation which so many understand to be intended when "chloric ether" is prescribed contains only from 2 to 3 per cent. of chloroform, although, judging from its specific gravity (which has deceived so many), it would contain 7 to 9 per cent.

With regard to sal volatile Mr. Thresh found that with perhaps one exception, every wholesale house made a sp. ammon. co., besides the B.P. sp. ammon. arom.

His examination of the samples sent him proved that the special preparations varied in specific gravity from .840 to .954, and the percentage of ammonia from .813 to 2.326. He was not surprised to meet with a good deal of variation in these articles, but he thought it was unsatisfactory that the

samples of B.P. should also prove very different in their chemical characters. Among these the specific gravity ranged from .865 to .894, and the percentage of ammonia from 1.037 to 2.849. It was also found that there was no ratio whatever as to the proportion of ammonia present in the free form, or as carbonate.

Dr. SYMES pointed out that the variations in proportion of caustic ammonia and carbonate of ammonia caused considerable differences in flavour, and were therefore by no means unimportant. Speaking of chloroform, he said he thought it was generally understood that the spirit of chloroform, P.B., had been introduced expressly to replace the very uncertain preparations which had formerly been used under that name. He considered Mr. Thresh's paper gave additional weight to the arguments he had used yesterday in favour of the appointment of a committee, with a view to bringing about greater uniformity in practice.

Mr. ELLISON had found a sal volatile made according to the following formula yield a spirit of exactly the same sp. gr. as the B.P. preparation: 8 oz. of carbonate of ammonia dissolved in 12 oz. of water and 4 oz. of strong solution of ammonia; adding this solution to 6 pints of spirit it would yield 7 pints. The essential oils were added last.

REPORT ON THE STRENGTH OF COMMERCIAL SPECIMENS OF AQUA LAURO-CERASI.

By J. Woodland, F.L.S., F.C.S.

THE author had made 12 estimations of hydrocyanic acid contained in samples of this drug obtained from different pharmacists. In two samples he found no trace of hydrocyanic acid, and these he described as a mixture of essence of almonds (*sine* prussic acid) and water, the odour being very different to that of the other samples, and alcohol was proved to be present. The other samples contained proportions of hydrocyanic acid from .024 to .032 per cent., the variations being due probably to age. The author had found that a recently-distilled sample of cherry-laurel water from fresh leaves contained .0324 per cent.; one distilled from dried leaves, .0204 per cent. This showed in the process of drying the active principles (which, when treated with water, yield hydrocyanic acid as one of the products) were partially destroyed. As an easy test for the presence of hydrocyanic acid in cherry-laurel water Mr. Woodland recommends a weak solution of mercurous nitrate in dilute nitric acid, which in the presence of a cyanide gives a greyish-brown precipitate, even in the presence of chlorides, bromides, iodides, or phosphates. The test is not so delicate as the Prussian blue and sulphocyanide tests, but is sufficiently so for the purpose to which it was applied; a sample of cherry-laurel water not giving a reaction with the mercurous nitrate solution would certainly not owe its efficacy to hydrocyanic acid.

THE STRENGTH AND PURITY OF ALKALINE SOLUTIONS OF POTASH AND AMMONIA MET WITH IN PHARMACY.

By J. Woodland, F.L.S., F.C.S.

TEN samples of liquid potash had been bought and examined. The variations were slight.

The average specific gravity of the samples was 1.0537, that of the B.P. solution being 1.058; the average percentage of alkali was 5.4052, or 24.917 grains in an ounce, the strength of a B.P. solution being 5.84 percentage of alkali, or 27 grains in an ounce, and the average percentage of chloride was .2015.

Lead was found in two of the samples, and its presence the author considered was due to want of care in storage. In nearly every case when purchasing the samples he noticed that the solutions were poured from white (instead of, as the B.P. orders, green glass) bottles, and he believed the two samples containing lead were poured from *new* white glass bottles recently labelled. He had tested two samples of liquid potash which had been kept in *old* white-glass bottles for the space of from three to six months, and no trace of lead was found in either, but on testing a sample that had been kept in a *new* white-glass vehicle for three weeks the presence of lead was very evident.

From experiments performed upon solutions of ammonia, both strong and dilute, it was found that they are, as a rule, free from salts of other metals, although the strength and specific gravity vary to a slight extent. Six samples of dilute solution of ammonia were obtained from retail phar-

macies. The specific gravity varied from .946 to .961, and traces of sulphates and chlorides were the general impurities.

Five samples of strong solution of ammonia were examined. The specific gravity varied from .880 to .892, and only traces of sulphates, organic matter, and chlorides were found.

Professor ATTFIELD had read the last four papers with some abbreviations, and it was too late to discuss them fully.

The papers disposed of, Professor Attfield read a letter from Mr. Ralph Davison, giving a formal invitation from the chemists of York to the Conference to assemble in that city next year, 1881. This invitation was supported by Mr. Clark, of York, who said that the York chemists were unanimous in desiring the visit of the Conference, and they might be sure of a hearty Yorkshire welcome. He mentioned the York Glassworks as an object of interest. The invitation was accepted on the motion of Professor Attfield, seconded by Mr. Brady.

The officers and executive committee which had been recommended by the committee were elected as follows:—

PRESIDENT		OTHER MEMBERS OF EXECUTIVE COMMITTEE	
Richard Reynolds, F.C.S., Leeds		R. Dresser, York	
VICE-PRESIDENTS		T. Greenish, F.C.S., London	
Prof. Attfield, F.R.S., &c., London		J. Hughes, Swansea	
R. Davison, York		A. H. Mason, F.C.S., Liverpool	
N. M. Grose, Swansea		S. Plowman, London	
C. Umney, F.C.S., London		C. Symes, Ph. D., Liverpool	
TREASURER		W. A. Tilden, D.Sc., F.R.S., Birmingham	
C. Ekin, F.C.S., Bath		J. C. Thresh, F.C.S., Dnxtton	
GENERAL SECRETARIES		J. R. Young, Edinburgh	
F. Baden Bengier, F.C.S., Manchester		AUDITORS	
M. Carteighe, F.C.S., London		J. T. Williams, Swansea	
LOCAL SECRETARY		J. Clark, York	
Joseph Sowray, Petergate, York			

Mr. BRADY moved, and Mr. SAVAGE seconded, a vote of thanks to the local chemists for the admirable arrangements they had made for, and the kind reception which they had given to, the Conference. The vote was passed with warm applause, and was acknowledged by Messrs. Grose and J. Hughes.

Mr. GROSE said Englishmen as well as Welshmen had only done their duty, as they always should, and Swansea had been proud to entertain so many scientific luminaries from all parts of the country and from across the Atlantic.

Thanks were also voted to the proprietors of the Hafod Copper-works and the Landore Tinplate-works for their courtesy in permitting the inspection of their processes.

Mr. CHIPPERFIELD moved a vote of thanks to the President for his courteous, efficient, and able conduct of the business of the Conference. He had followed an illustrious line of ancestry, and certainly the dignity of the office had suffered nothing at his hands.

Mr. HUGHES (Llandilo) seconded the motion, expressing the hope that the visit of the Conference would be an incentive to the chemists of the Principality to improve themselves. He then delivered a short but vigorous speech in Welsh, which was listened to with great interest.

The PRESIDENT acknowledged the compliment.

PRESENTATION TO PROFESSOR ATTFIELD.

Mr. SCHACHT said he had a duty to perform, the responsibility of which he felt to be great, but he had great personal gratification in fulfilling it. Having spoken of the resignation of Professor Attfield, Mr. Schacht said the first feeling of something like dismay had been replaced by one of gratitude, and it had been felt that some formal recognition of that feeling should take place. As President of the Conference last year, he had become Chairman of the Committee; hence the prominent part which he now took in this matter. He had enjoyed the personal acquaintance of Dr. Attfield for many years, and he could trace in his career a constant steady effort to lead a good and useful

life. His goodness, he believed, had been the mainspring of his usefulness. He had achieved a distinguished position for himself, and always held before them for cultivation that higher life of mental culture which was so important in our calling, but which we were so prone to forget amid the experiences of business. Mr. Schacht briefly sketched Professor Attfield's career from 1854, when he carried off the only two medals which the School of Pharmacy then gave, till last year, when he received the blue ribbon of science—the Fellowship of the Royal Society. A scroll containing the following words was then handed to Professor Attfield:—

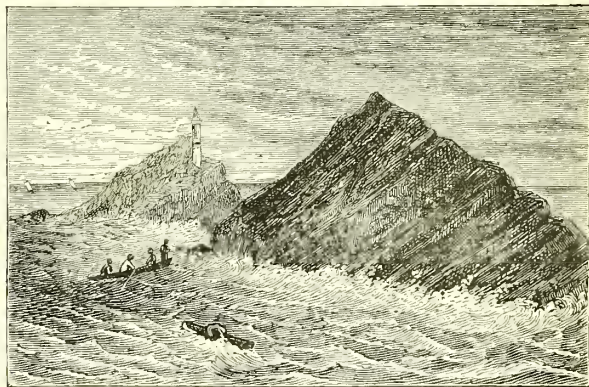
Presented, with about five hundred volumes of general literature, to John Attfield, Ph.D., F.R.S., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, &c., by Members of the British Pharmaceutical Conference, in token of their goodwill and hearty appreciation of his services as Senior Honorary Secretary of the Conference from its foundation at Newcastle-on-Tyne in 1863 to its meeting at Swansea in 1880. Signed by G. F. Schacht, Chairman, F. B. Bengel, Henry B. Brady, T. Hyde Hills, Theophilus Radwood, Richard Reynolds, and Michael Carteighe, Honorary Secretary.

Professor ATTFIELD, who was warmly cheered, said—Mr. President, Mr. Schacht, and gentlemen, I accept your very handsome testimonial with feelings of pleasure and satisfaction which are simply inexpressible. As you have heard, 17 years of the prime of my life have been devoted—shoulder to shoulder with such honoured colleagues as Reynolds, Brady, and Schacht, with presidents who still gladden us with their presence, and presidents who have passed away—to the founding, developing, and maintaining of the British Pharmaceutical Conference. My great reward is in the grand success of our joint labours. That success is unquestionable. During those 17 years the Conference has contributed to the stock of pharmaceutical knowledge 400 original investigations, and that without impoverishing in the slightest degree any other agency for the prosecution of original research. We have annually given opportunities for the leading chemists and druggists of Great Britain and Ireland to assemble together and exchange thoughts and opinions on pharmaceutical matters, and, by the generous aid of the local members in the towns we have visited, have given them opportunities for friendly intercourse and good fellowship; and these things have had the happiest results. And lastly, for the past 10 years, we have given to every one of our members not only the ordinary advantages of membership in a great association, but a record of the pharmaceutical discoveries made throughout the whole world, in the form of a Year-book, which itself has been, I think, at least of double the value of the annual subscription. I say again, my greatest reward is in contemplating the results of these, our joint labours. But, gentlemen, to have one's life work appreciated and recognised by those for whom it has been more immediately undertaken and continued is extremely gratifying, and, therefore, I thank you from the depths of my consciousness for this most delightful present. Gentlemen, my wife will thank you. And my children will thank you, too; for they are just entering on the paths of general literature, and my library, although fairly well reflecting science, much needs enriching in such works of general literature as those you now present to me. I myself, at the age of 14, or a few weeks over, went from my school books straight to the study of works of chemistry, botany, pharmacy, and materia medica; but, like Enoch Arden, I have ever desired that my children should have even a better bringing up. And as for my wife, of whom I am sure I may say, "Many daughters have done virtuously, but thou excellest them all," I have long determined that she, now that the cares of teaching and training are getting less, should have the opportunity of having at command the works of those authors with whom a busy life (busy as mine) has only allowed of her having a partial acquaintance. You, by this present you now make me, enable me to realise some of my most cherished hopes. Gentlemen, I can only say that you could not possibly have gratified me and my family more than by publicly recognising this work that I have done, the loving labour that I have undergone for you and for pharmacy, and you could not possibly have chosen a better mode of showing your appreciation.

With three cheers for Professor Attfield the proceedings of the Swansea Conference were brought to a close.

THE ENTERTAINMENTS.

Most liberal arrangements had been made by the Local Committee to welcome their guests. An excellent lecture theatre, belonging to the Royal Institute and Museum, had been engaged for the Conference, and luncheons were provided in the mid-day interval of such a substantial character that the hotel dinners in the evening were found almost superfluous. Excursions to the Hafod Copper-works and



the Landore Tinplate-works occupied the first evening, and a steamboat trip round the bay on the second evening was a charming relief when the scientific labours of the Conference were finished. The following morning (August 26) the members of the Conference, local and foreign, with about a dozen ladies, mustered to the number of 90, and mounting four-horse coaches and waggons proceeded to Gower for a day's holiday. Certain weather-wise pharmacists loudly proclaimed the certainty of a fine day, whereupon the other-wise ones hid macintoshes in the coach corners. An absolutely fine day has almost vanished from the range of hopes of pharmaceutical excursionists, and as the procession crossed Fairwood Heath the rain strove with its utmost energy to rival the drenching displays of Sheffield and Dublin. But the pharmacists stuck gallantly to their seats, and the rain sulkily retired after an hour and a half's persistence. The road skirted the heights of Cefn Bryn, and the coaches landed their freight at the gates of Penrice Castle, one of the seats of Mr. Talbot, the oldest member of the House of Commons. Here were the ruins of an old castle with an unknown history, and near it a modern residence with no architectural pretensions, but charmingly situated. Within was a collection of old pictures, some fairly good, some execrably bad. Rambling through the park and through country lanes the party reached Oxwich Beach, and found a luncheon waiting for them in the garden of a clergyman close by. From thence a stroll round the bay or through the woods for four or five miles led to perhaps the most picturesquely-situated workhouse in the kingdom, in the board-room of which high-tea was served. The peculiar character of a "high-tea" appears to be the absence of tea and the abundance of everything else. A busy scene followed, and a cheerful hour succeeded. Ringing cheers were given for Messrs. Grose and Hughes, and the other members of the Local Committee, whose cheerful exertions had provided so much pleasure. Some one whose name did not transpire suggested a collection for the entertainment of the regular residents in the house where this feast had been held, and the proposal was promptly responded to. Then as evening drew on the coaches drew up, and the party returned to Swansea, soon to disperse to their various homes and labours.

The following were the members present:—

Aberdare.—T. W. Evans, J. Richards, W. J. Thomas. *Barnsley*.—T. Lister. *Brighton*.—W. D. Savage, W. W. Savage. *Brigend*.—J. Lloyd. *Birmingham*.—W. Southall. *Burry Port*.—T. R. Thomas. *Carmarthen*.—J. D. White. *Cheltenham*.—W. Barron. *Chicago (U.S.)*.—C. G. Wheeler. *Clifton*.—G. F. Schacht. *Dolwich*.—E. Taylor. *Edinburgh*.—S. Macadam. *M.D. Exeter*.—G. Pasmore. *Gatehead*.—H. B. Braly. *Gloucester*.—H.

Meadows, W. Stafford. *Leeds*.—R. Reynolds. *Lampeter*.—J. W. Evans. *Landore*.—H. J. Thomas. *Leamington*.—W. H. Pullin. *Leicester*.—J. W. Clark. *Leighton Buzzard*.—R. Richmond, jun. *Liverpool*.—A. H. Mason, C. Symes. *Llanelli*.—G. Evans, E. Hughes. *Llandilo*.—T. Hughes. *London*.—F. Andrews, J. Attfield, J. B. Barnes, S. M. Burroughes, R. H. Davies, F. W. Fletcher, A. W. Gerrard, T. Greenish, M. Howell, A. B. Lewinton, W. A. H. Naylor, F. Passmore, B. H. Paul, S. Plowman, J. T. Savory, A. Seidler, C. Umney, A. C. White, J. White, A. C. Wootton, T. R. Wright. *Merthyr Tydfil*.—W. Smith. *New York (U.S.)*.—H. S. Wellcome. *Pontardawe*.—W. Samuel. *Philadelphia (U.S.)*.—J. M. Maisch, Mrs. Maisch, F. B. Power. *Pontypridd*.—W. H. Key. *Rochampton*.—J. Swain. *Shiffeld*.—A. H. Allen, G. Ellinor, H. W. Maleham, W. Ward. *Shepton Mallet*.—G. Cottrill. *Southampton*.—R. Chipperfield. *South Molton*.—R. H. Swingburn. *Swansea*.—F. Eonnett, J. T. Davies, J. Hughes, W. George, N. M. Grose, M. Jones, J. W. Lloyd, W. Morgan, D. Powell, D. Rees, M. Trick, J. T. Williams. *York*.—J. Clark.

The total number attending this Conference reached only 79. There were 146 present last year at Sheffield, and the average for the past 10 years has been 143. At the present meeting there was no single representative from Scotland or Ireland, but five names are recorded as representing the United States. There are 25 Swansea chemists in Kelly's Directory; of these only 12 appear to have attended the meeting. No representative from the neighbouring town of Cardiff is on the record. A considerable number of those attending the meeting did not go on the excursion, but 90 persons were at the table at Gower.

THE SMYRNA MARKETS: OPIUM AND ITS CULTIVATION.

BY JOAQUIN MARTI Y ARTIS.

Smyrna, September 1.

TAKING as a base for calculation the figures given in my first letter representing the annual yield of the opium crop of Anatolia over a space of ten years, we get an average of about 5,500 baskets, a very poor return, it must be admitted, when compared to the extent and richness of the soil annually under cultivation.

Nearly all this finds its way to the Smyrna market, and falls in fact into the hands of a few big speculators, who naturally take advantage of any deficiency of the crop as in the present year, and force the world at large to pay their prices for its supply of Turkey opium. Everything at present seems to point to higher prices before the year is out—our small stock is in the hands of a few weighty dealers, while the demand both in Europe and America is, and promises to continue, active. As the article itself is one of the richest exported from Turkey, and forms the principal subject of my monthly report to you, I dare say a few words about its culture will not be misplaced here.

Your readers, I suppose, are quite aware that everything in Turkey, even, it is said, the electric fluid itself, moves at the pace of a snail, and that innovations of any sort, and even ameliorations, are resisted and resented by the masses, and looked upon with suspicion both by the governed and the governing classes. Hence it is that Turkish agriculture, like everything else, is "unique," and to this day is carried on after the same fashion and with the same uncouth and barbarous implements as it was in the days of the Patriarchs. No matter where you turn, whether among the genuine descendants of the Osmanli race, spread over Anatolia and Roumelia, or among the Koods and fellah Arabs on the plains of Kurdistan and Mesopotamia, you find that everything is everywhere the same. The old antediluvian plough, made from a crooked beam of wood, with a bit of stick jutting out at one end for a handle, and shod underneath with a few inches of iron, is still drawn slowly over the ground by a pair of emaciated bullocks, and when the husbandman cannot afford that luxury, by a bullock yoked to a horse or an ass, as the case may be. In this way about as much land is ploughed in a month as would be turned up anywhere else in a day. Of course everything else is in keeping. The ploughman holds and directs his rickety instrument with the left hand, and with the right goads on his team with a perch tipped with a pointed barb of iron, leaving the straightness of his furrows to take care of itself, so that after the field has been ploughed even Euclid

himself would be at a loss to name what geometrical figures they resemble.

Nor does the Government, although aware as it must be that by raising the agricultural standard of the country it would be benefiting itself, interfere or attempt to stimulate or direct the ignorant energy of its people to better paths, and introduce a healthy reform. On the contrary, apathy and indifference seem to be its motto till the harvest comes on, when it suddenly puts forth all its energy to the gathering-in of the taxes, and the way in which this is done is in itself a source of delay, and often of ruin, to the poor struggling peasant. I shall not, however, here touch that subject, as it would take too much time and space. I may remark, however, that every year, except when nature herself comes to the rescue, the splendid crops of wheat, millet, barley, cotton, sesame oil, &c., and all the other products of this teeming Eastern soil, are either partly or wholly destroyed by the locusts, and yet no serious attempt has ever been made by the Government to rid the land of this plague, though it is possible, if not completely to destroy, at least to greatly diminish, their yearly increasing numbers. This was proved from the good results obtained in Cyprus some years ago, where they were so far thinned by the war of extermination carried on by the destruction of the eggs that the peasants have since enjoyed at least the greater part of their industry, while in Turkey the peasantry are threatened every year with famine consequent on the depredations caused by these insects.

Although there are some Greek villages scattered here and there in the interior, all the peasantry tilling the soil are Turks. As a race they are dull, and though physically superior to the Greek, are intellectually vastly his inferiors. As they have no schools they grow up wild and barbarous, and what surprises the traveller is their stolid satisfaction with their condition, even when the means of bettering it are within their reach. Of course there is much truth in the fact that the richer they grow the more is extracted from them by those petty tyrants, the *caïmacams* and *beys*, and their immediate satellites the *zaptieh* and *tchaouch*, who with the rest literally eat up the people. For this the Government is to blame; but, if you go to a Turkish village you will see that, though a splendid forest may be within a mile, the peasant's house is built of mud, and that he and his family sleep on the naked earth, with perhaps a rug or a carpet only on the floor. He never thinks of building separate dwellings for his wife and children, but huddles them with his other cattle all promiscuously together under the paternal roof, where, round a fire in the centre, the smoke of which escapes through a hole at the top, his young barbarians, his poultry, sheep, goats, and everything that is his, live through the winter months till summer again invites them to the hills. After the land has been ploughed or scraped in the way described, and the harrow (a board with a few stones piled upon it) been run over the field to crush any clods that may come in its way, the first showers of October-November see the opium seed consigned to the earth in the way wheat is thrown from the hand. These, the first sowings, are followed in March by the second, explained in a former letter and after the plants grow up, if it is found they cluster too much together, they are thinned till a space of from 20 to 40 centimetres is left between each. In the meantime the ground is loosened around them to let the air and moisture nourish the roots, and further on any weeds that spring up to choke the growth of the young plants are carefully removed. After the plants have blossomed and the blossoms fallen, leaving the poppy-head nude on its stem, the husbandman, calling round him his friends and neighbours when unable to pay other labour, and after feasting them with everything choice he possesses, leads them to his field, where they proceed to make circular incisions round the poppy-heads with a little knife about 2 inches long, provided with small sharp teeth like a saw. This operation requires great tact and care, for it would prove a failure if done 24 hours too soon or too late. From this wound round the poppy the juice oozes forth, and is gathered, after 24 hours, on a small knife with a wide blade, used as a scraper, about 8 inches long. The gathering takes place early in the morning, and the stuff is put by for two or three days to dry. In this state it is somewhat of the consistency of gum. When the quantity that comes from the wound is

abundant, care is taken not to press the knife that collects it too much against the poppy's rind, scrapings from which would injure the quality; but when the yield is little this precaution is waived, and hence the quality of a scanty crop is always inferior. After the opium has been dried enough to permit of being kneaded with the hands, it undergoes this operation: the hands all the time being kept wet with saliva, and the pellets of different sizes are afterwards enveloped with the leaves of the plant itself, put into baskets, and well sprinkled with the seed of a plant called by the Greeks "Lapitho," to keep the stuff from sticking together. In the opium-growing districts live Greek and Armenian speculators who, on the conditions existing between them and the peasants—to whom they generally advance money at a heavy interest (about 12 per cent. for five or six months)—get from them the opium, and send it on to Smyrna to their agents for sale. Most of it comes to Smyrna by rail, but small consignments reach Alexandretta and Messina from the districts nearer those ports. The Government takes 10 per cent. on all such produce. Formerly adulteration, or rather mixing different qualities of opium, was not indulged in by the Turkish peasants, but of late years an inferior sort called "yoghourná" has always come to market; this is a composition made by mixing inferior opium (chiquinti) with other bad qualities, and kneading the whole up with egg, flour, gum, and other foreign matter, according to each manipulator's own system.

My telegram of August 13 informed you of a rise in the market here some time after my last letter had been forwarded. An active demand in the consuming markets brought it on, but for some time previous we were already aware that it would occur sooner or later. To-day we are exactly in the same position, with an upward tendency, on account of the smallness of the stocks.

The operations of the month are 330 baskets. Our market closes with buyers for London and America at the following prices:—

Good new	Ps. 225 per chequi
Old Karahissar	225 "
New Bagrditch	230 "
Yoghourná	213 "
Talequale	202/206 "
Chiquinti	185/195 "
<hr/>	
Arrivals up to date	700 baskets
To be deducted	30 (Egyptian arrival)
Total	670, against 1,602 last year

Our actual stock is 900 baskets against 2,200 for corresponding time last year. At Constantinople the market is in the same state as here. The stock there is very limited, being only 68 baskets as against 390 for corresponding period of last year. Arrivals at Constantinople up to date 168, against 701 baskets same time last year.

Gall Nuts.—Nearly 4,000 okes of the new crop came to market, and were immediately bought up. The white and black at 12 piastres the oke; the green at from 6½ to 7.

Yellow Berries.—The new crop is much sought after, and obtains 9 piastres per oke, while the few sacks remaining of last year's crop fetch only from 7½ to 8.

Scammony.—The arrivals began about a month ago, and are freely bought at from 15 to 20 medjids per oke for first qualities, and from 7 to 12 for ordinary sorts. This year's yield is calculated to be about equal to that of last year.

Gum Tragacanth.—According to news from the producing districts this crop has been considerably damaged by the heavy rains, and it is thought there will be none of the white leaves to represent our superior qualities. What is certain is that those who hold our present stock (about 20,000 okes) ask for good qualities prices entirely out of proportion with those of the consuming markets. Buyers keep aloof, however, until more certain news about the damage done to the new crop comes to hand.

Chio Turpentine.—The greater part of the crop has been bought up by some Smyrna houses, and for the little left unsold at Chio the islanders ask exorbitant prices, they having found out that it was in demand in the medical world of late.

THE WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY.

THE eighth session of this very successful establishment was inaugurated on the evening of September 2 by an entertainment given in Hawkstone Hall, Westminster. The floor of the Hall was well filled with ladies and gentlemen, and the company included about one hundred and fifty students, old and new. The entries for the session numbered 113. The programme included an exhibition of scientific apparatus, and a concert of vocal music by Miss Helen Heath, Miss Annie Sinclair, Mr. G. T. Carter, and Mr. T. Distin, with Mr. Taylor as pianist. Many of the songs, especially those given by the ladies, won great favour. The Rev. W. Williams, who presided, presented the gold medal of the college to Mr. C. H. Fazan, who took the highest place in the college examinations of last session. Silver and bronze medals had also been awarded to other students, but it was stated that they were not present to receive them personally.

Mr. WOOTTON read the report of the college for the session 1879-80, which recorded the continued success of the establishment, and claimed that the Westminster College led the van of all the pharmaceutical schools in the country. During last session 151 students from this school passed the various pharmaceutical examinations, namely 12 the Major, 119 the Minor, and 20 the Preliminary Examination. A good number had passed with honours, and many had also passed the examinations of the Apothecaries' Hall from this college. All that was needed on the part of the student to ensure success was industry and assiduity.

Mr. WILLS in the course of an address to the new students said he assumed that all desired to succeed in the pharmaceutical examinations, partly for the sake of the prestige of the college, and partly for the opportunity they would thus acquire of securing an honourable position in life. But good intentions were not sufficient: they were but the protoplasm of success; good actions were necessary to ensure complete success. Many young men began well; like the tree covered with blossoms, they promised well for a time. But the frost and blights prevented the fruition. Few, he supposed, commenced their course of life or study without intending to succeed; the reason why so many failed was an incapacity for hard plodding work. The Principals of the Westminster College would spare no labour or expense on their side to ensure success: but that was not enough. There must be a co-operative effort on the part of the students. It was very important that the studies should be systematically arranged. This was of vital importance, not only to the students themselves, but also for the college, and this was the secret of their success, a success which many could not understand, which some would like to overthrow, but which none could deny.

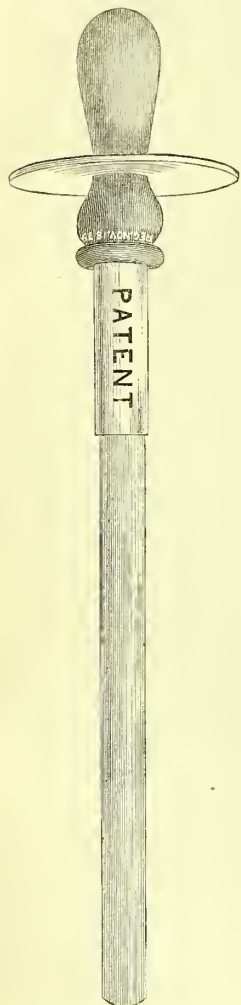
Students who wished to succeed must resist the allurements of this city. They must, as Carlyle has said, "assert a soul and be a man." They should not rest satisfied merely with the Minor certificate which the law required before they could practise as chemists and druggists, but should make up their minds to aim at the higher qualification. For the sake of the reputation of the school he hoped all would work hard. There was little doubt about their being able to pass. Last session, out of 196 candidates from that college, 151 had passed, and there was no reason why any of those before him should fail if they would work hard. The examinations were conducted in an able manner by thoroughly competent gentlemen. He knew that candidates sometimes failed through extreme nervousness. Sometimes this nervousness was natural, sometimes it was caused by overwork; but to prevent it, it was especially desirable that the student should observe strict abstemiousness during his course of study. Excessive smoking or excessive drinking was certain to bring a nervous condition. He had heard individual examiners referred to, but he did not think it mattered what examiner they had. Some of them, perhaps, might lose their tempers occasionally, and, perhaps, it was no wonder that they should. He had heard that a ten months' curriculum was advocated in some quarters. He failed to see the utility or the fairness of a curriculum of such an extent. He thought the examinations as they at present existed were a sufficient test, and

for them a ten months' course was not required. Nor did he think it fair that the opportunity of entering the trade should be confined to those who were born with silver spoons in their mouths. Often those who had to fight their way through difficulties proved the most useful and intelligent men.



NEW FEEDING-BOTTLE FITTINGS.

MESSRS. S. MAW, SON & THOMPSON have patented a new coupling-piece and have registered a new form of teat for the fittings of their feeding bottles. The advantage attained will be obvious from a glance at the drawing. The porcelain coupling-piece takes the place of the old union joint, while the shield now fits on the teat and not on the union joint as formerly. The separation of the parts for cleaning and the restoration of the teat to its air-tight position is thus easily accomplished.



FLETCHER'S SOLID-FLAME BURNER.

MR. FLETCHER (Warrington) has improved and simplified the form of his solid-flame burner as noticed by us a few months ago. It is now cast in one piece, the supports for the vessel containing the substance to be heated are outside the furnace proper, the gauze covering is readily movable for the purpose of cleaning, and the draught tube is longer. The maker claims that the solid-flame burner will do more work than the

maximum theoretic duty (as at present accepted) of the gas consumed.

INK FOR ENGRAVING ON GLASS.

WE have experimented with a new preparation introduced by Messrs. Sabatier & Co., of London and Paris, for writing on glass. This ink is a milky fluid, and is evidently made from fluorhydric acid, but it is quite free from danger, as it may be rubbed on the fingers without causing any injury to the skin. It may be used with any pen for drawing or writing on any glass surface without any previous preparation. Having washed off the ink an etching of the design or

words remains. For marking bottles with poison indications, graduations, or tare weights, for many chemical purposes, and for fancy work on wineglasses or windows this ink will be found useful. It is supplied in little gutta-percha bottles to retail at a shilling.

SOUTHALL'S AQUARIUM SEA SALT.

MESSRS. SOUTHALL BROS. & BARCLAY having been called upon some time ago to prepare the salts for the 200,000-gallon aquarium at Aston, Birmingham, in which experiment they so completely succeeded that a local authority declared that no animal, nor plant, nor chemist could tell this water from that brought from the sea, they have now turned their experience to account by preparing the same salt for general use. According to them many of the sea salts in the market are only impure common salt, and are devoid of the characteristics of the ingredients of true sea water. They therefore introduce their genuine article.

Gossip.

Among the drugs whose names cause the most difficulty to our customers that which furnished the vinous indulgence of our infancy is one of the most troublesome. Even educated people often stumble over the sinuosities of this emetic-looking monster, and the other class get hopelessly lost in its earliest stages. We have seen it spelt "eke peke quke anna wine," but that was not by an authority which had any claim to vary the orthography. It was, however, a little startling to find the Executive Committee of the British Pharmaceutical Conference blundering over this name. In their programme of papers at Swansea they spelt the word "ipeachuanana," and even now when they look at it, notwithstanding all the swarming letters after their names to indicate their boundless learning, they ask in amazement, "Well, what's wrong with it?"

* *

This was not the only blunder committed by the editors of the Programme of Proceedings of the British Pharmaceutical Conference at Swansea. They are very important personages, no doubt, but they are not the Fountain of Honour, and it becomes our duty to lay before Sir Albert Woods the alarming announcement that they have to some extent usurped Her Majesty's prerogative in this respect. The Companionship of the Order of the Indian Empire has lately been conferred on Dr. de Vrij, of The Hague, an honorary member of the Conference. The learned doctor has a right to the letters C.I.E. He appeared on the programme as a C.S.I., or Companion of the most Exalted Order of the Star of India, a dignity which, we believe, is two, if not three, stages higher in the Table of Precedency of the British Aristocracy.

* *

The journey from London to Swansea is not without its perils, due chiefly to the circumstance that the adventurer is in the hands of the Great Western Railway Company. The members of our party, unaccustomed to the guile of the world, paid for our railway tickets just what the clerk at the pay office thought fit to ask us. Other more astute old travellers on the Great Western Railway, with a more accurate acquaintance with the ropes, passed the word "tourist" when they called for their tickets, and consequently got them for 5s. less money.

* *

Corporations, as we have lately learned, are not subject to all the requirements which the law demands of ordinary bipeds. Of moral considerations they are of course necessarily independent. They have no conscience, and cannot be treated as responsible beings. But this is all the more reason why the laws which govern railways should be very definite and stringent in regard to fairness. If a wine merchant should bottle his 20s. ordinary and his 40s. St. Julien from the same tap he would be simply a rogue to be

avoided by his customers when found out or suspected. But railway companies carry on an exactly similar game with an audacity and openness which to some extent redeem the dishonesty of the proceeding. The Metropolitan Railway sells daily thousands of "third-class" and "parliamentary" tickets, providing for both classes of purchasers exactly the same accommodation—putting them side by side into the same compartments in fact—and yet charging on the average about 50 per cent. higher for the so-called "third-class" ticket than for the "parliamentary."

* *

While we are alluding to these contemptible frauds on the travelling public, which are apparently sanctioned by most noble and honourable boards of directors, we would caution provincial visitors to London against a little game of their own in which there is good reason to believe certain of the ticket clerks have found it profitable to indulge. You ask for a ticket, the cost of which is perhaps 1s. 6d. You lay down a sovereign, which is forthwith appropriated by the hand with which you are conducting your negotiation. Silver to the amount of 8s. 6d. is handed out to you, and if you are in a hurry or thoughtless, and snatch it up and run for your train, so much the better for the clerk's income. If you wait a few seconds the half-sovereign due to you will come, and it is impossible to say whether the interval is merely reasonable deliberation or is part of a scheme with a definite purpose.

* *

The talented Professor Buchanan, of Philadelphia, whose career as a diploma-monger we sketched last month, seems to have found bail, and, as might have been expected, has not thought it advisable to answer to his name in the United States Supreme Court. Just before his case was to be heard he, or somebody like him, leaped from a steamer into the Delaware river, but on dragging the spot his body was not to be found. His sorrowing relatives and the detective force did not, however, abandon the hope of further communion with him in this world, and the professor was consequently tracked to Canada and back again to Michigan, where he was arrested. It is even yet doubtful whether the American police can hold such a slippery customer long enough to "jug" him.

* *

Dr. Shorthouse (*Brit. Med. Journal*, August 21) says that according to his observation intoxication from wine or malt liquor is likely to cause its subject to fall on his side, whisky brings him down on his face, and cider or perry invariably lays him on his back. He supposes that the different drinks act on various organs of the cerebro-spinal system. We presume that according to this theory a carefully adjusted mixture of beverages might be devised which should have the effect of exactly balancing the imbiber.

* *

No one will doubt that Dr. Tanner undertook his great fast with the primary object of promoting or rather of settling scientific inquiry. But an accidental result of his sufferings is worthy of record. A New York paper states that the fast brought in a total revenue of \$137,610, or nearly 28,000*l.* sterling. According to that authority the doctor cleared \$5,000 by his own bets, \$12,225 commission from a betting agency, \$1,500 by sale of photographs, \$78,915 by payment for admission to the house, \$11,102 for signatures given to manufacturers to enhance the popularity of their commodities. He is also said to have received \$3,000 as a testimonial from the University, though which University fools its money away in this form is not stated; \$5,000 from the State of Ohio, and (this is the tid-bit) \$20,000 from Liebig & Co. We should rather prefer to believe that the last item belonged to the debit side of the account, but however that may be, we should be sorry to learn with certainty that the doctor netted anything beyond the saving in his housekeeping expenses from his silly display.

* *

One of the members of the Legislature at Adelaide, South Australia, brought in a Bill lately to prohibit the importation into the colony of any matches except those which would ignite only "on a chemically-prepared surface or by the application of fire." The hon. member was very earnest

and pathetic in describing the sad results which attended Tandstickors, Congreves, and the like, and might have got together a decent minority, had not another member, a Mr. Parsons, followed him with a speech illustrated by a number of literally striking experiments. This gentleman and his friends demonstrated the untrustworthiness of a number of so-called "safety matches" by lighting them on boots, tables, glass-doors, walls, slates, and other objects. The other party said that of course such spurious "safety matches" would not be admitted, but the members had not the courage to trust to science and honesty after the pyrotechnic display of the evening, and the Bill was rejected by a large majority.

* *

Henry Ward Beecher some time since received a letter from a young man, who recommended himself very highly as being honest, and closed with the request, "Get me an easy situation, that honesty may be rewarded." To which Mr. Beecher replied: "Don't be an editor, if you would be 'easy.' Do not 'try the law. Avoid school-keeping. Keep out of the pulpit. Let alone all ships, stores, shops, and merchandise. Abhor politics. Keep away from lawyers. Don't practise medicine. Be not a farmer nor a mechanic; neither a soldier nor a sailor. Don't study. Don't think. Don't work. None of them are easy. O my honest friend, you are in a very hard world! I know of but one real 'easy' place in it. That is the grave."

* *

Professor Jaeger, of Stuttgart, claims to have discovered that human beings can resist epidemic diseases in a ratio equivalent to their specific gravity. He finds that fatty, puffy, watery constitutions are more subject to such diseases than tough, hard, wiry people—a discovery which it hardly needed Professor Jaeger's elaborate argument to prove. But Jaeger thinks he has discovered something more than this. He can raise the specific gravity of the body, reduce the fat, and toughen the wires. He and his family, and thirty or forty of his more impressionable friends, are therefore now going about Stuttgart clothed exclusively in woollen materials; he admits no cotton or linen whatever. Even cotton-lined pockets are to be eschewed. Woollen materials permit the regular perspiration of the body, and, being bad conductors of heat, tend to keep the skin in a blood-rich condition. But Jaeger's investigations have wandered even further than this. He finds that the perspiration gives off pleasant or disagreeable odours according as the subject is in a good or bad humour. In a joyful state of mind the perspiration is sweet and not disagreeable, but it is offensive when the soul is in anguish or under great nervous irritability. There has seldom been such a blow to the materialists as this. The ideas suggested are not altogether spiritual though. It is possible to imagine a Jaegerite in a ball-room taking a sniff of his partner to ascertain if he has made her happy.

* *

There has been a rebellion in Price's Patent Candle Company. The shares which once paid 20 per cent. have run down to an average of 3½ per cent. for the past 24 years, and at the annual meeting last March the shareholders appointed a committee of investigation, and adjourned the meeting till August 18. There had been a large and unsuccessful speculation in paraffin, the manager having contracted for no less than 8,000 tons at a cost of 400,000*l.* At the time these contracts were made experts considered that the production of paraffin was likely to come to an untimely end, and the manager, in an able reply to the committee's report, shows that he did not buy so very recklessly after all. But paraffin, instead of going up went down, and Price's trade in paraffin candles did not increase as the directors had expected. In taking stock, however, the paraffin was estimated at cost price, not at market value, the figures showing a difference of 45,000*l.* Mr. Wilson (the manager) shows that it has always been the custom of the company to disregard the markets, as their stock was all for manufacture and not for resale. Mr. Wilson was one of the founders of the firm, which afterwards developed into this company, and though he now resigns his managership, he concludes his association with the business with the same dignity that has always characterised his conduct of it.



Terms for Advertisements, see page 33 (advertisement section).

Terms for Subscriptions, see page 373 (literary section).

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See page 9.

Fletcher's' Concentrated Liquors.
For full particulars, see CHEMIST AND DRUGGIST,
July 15th, pages 70 and 71.

MAY & BAKER. { SPECIAL NOTICE,
page 2.

EDITORIAL NOTES.

**THE PROSPECTS AND DUTIES OF
THE PHARMACIST.**

But what is that which they shall turn to lighting upon days like these?
Every door is barred with gold, and opens but to golden keys;
Every gate is thronged with suitors, all the markets overflow,
They have but an angry fancy what is that which they shall do.

The "survival of the fittest" is not a pleasant subject for contemplation, whether we view it from the standpoint of Darwin's Protoplasm, or Macaulay's New Zealander. Much more unpleasant, however, must it be if we are called upon, not to contemplate, but actively to engage in, the struggle for dear existence, though this, in the opinion of many, is the fate immediately in store for us in the recent breakdown of the Pharmacy Act. The proverbial "coach-and-four" has undoubtedly been driven through the Act, and left the opening wide enough in all conscience. In accepting the fact we have no wish to get lugubrious over it, nor do we intend to sup sorrow with a long spoon. We confess to having no faith in the divine institution and appointment of Storeedom, and we are all the more willing, therefore, to follow the advice of the old philosopher Gamaliel, though given on another matter, "Let them alone; if this counsel or this work be of men, it will come to nought." Though it should not, though, in other words, it should flourish and increase, we have confidence in the wisdom and business capacity of the majority of our body to

meet the emergency; we have confidence, moreover, in the continuity of purpose and progression exemplified in the history of pharmacy during the last fifty years. Such a history will not belie itself, nor will its progress be much retarded by the crisis through which we are now passing. Co-operative stores, even though they were to increase and multiply, will not make a history of pharmacy, nor will they advance science, nor do we expect that they will add much to the sum of human knowledge. The only knowledge which they recognise is a knowledge of trade, their science is of pounds, shillings, and pence, and their history is a history of dividends and profits. In other words, they strangle the professional and scientific, and just because they do this our hope and confidence is, that they will never eclipse or strangle the truly pharmaceutical. That they will probably purge it of much that is gross and objectionable may, we think, be admitted; that they will take from it anything that cannot be spared, or that may not be substituted by something higher and better, we think extremely doubtful. In saying this (and in saying it we have done with stores), we have in view a few thoughts which we venture to suggest it may not be inopportune to give expression to at the commencement of another session of labour and study and research.

The tendency of everything in the social and moral, as in the natural world, is progressive. The moment that progress is arrested decay begins, and death will sooner or later ensue. If for no higher reason than this we would urge earnest steady advancement. But there is a higher motive still: there is not only arrestment from decay, there is the possible, nay, the probable, attainment of life purer, healthier, higher. We think we see in the crisis through which we are now passing, or are about to pass, the possibility of attaining the higher platform—the possibility, not of increasing our profits and filling our coffers, but of attaining the professional and educating the public into the conviction that our knowledge and experience and skill are absolutely necessary to their safety and comfort, and being so are therefore beyond money and beyond price. We have no desire at present to expound all our reasons for this supposition, but recognising that to attain it there must not only be a unity of purpose, but also an individuality of action, we wish we could take every young man entering on pharmacy as a profession, and on whom its future depends, and put him through a supplementary examination as to his aims and purposes and aspirations. We will for the moment assume that all whom we thus address have attained their majority, and have passed the various standards that make them free agents for the future, both as regards their studies and their actions. Of all such we would ask, What are your hopes and intentions for the future? Are they merely to gain a competency, and glide along in an easy, aimless indifference? We do not despise the competence, for we recognise the truth and authority of an ancient writer, who says that “he who does not provide for the wants of his own household is worse than an infidel;” but we do despise the mercenary, the aimless, the indifferent. We would ask such, if such there be, to read the life of Scheele, or Priestly, or Faraday, or Jacob Bell, or Hanbury, or countless others whom we might mention, and ascertain the motives which actuated their lives, the discoveries which they made, and the honours which they ultimately gained. See if they can find anything aimless or indifferent in their lives, anything mercenary or grovelling, and, having done so, compare if there be anything in common between *their* greatness and their own petty littleness. We write this in no spirit of “tall talk.” In a life now lengthening, and which has been associated less or

more with pharmaceutic matters for many years, if there be one feeling more than another which is deepening and intensifying it is this, that as a body we fail in the opportunities presented to us. Year by year do we find young men of promise and ability coming forward for their examinations of whom greater expectations might justly be formed than are ever realised. We would not assert that they exactly fall into the purposeless or mercenary, but we do fear they fail to appreciate their advantages or rise to the possibilities which lie before them. Consider for a moment the circumstances. There is scarcely a department of science or art which touches not at some point or another the sphere of our labours. Greater, we might almost say, than in any other profession are our opportunities for invention and research. Every field, in fact, of investigation and discovery of which the world at present is so full is open to us—not out of the way and inaccessible, but at our very door, and pressing upon us. Can it be said that we have occupied these as we might or ought to have done? On the contrary, have we exhausted, or, can it even be said that we have cultivated properly, our own more immediate field of pharmacy? Take, for example, one department, which we fix upon, not arbitrarily, but because it has forced itself upon us in various ways, and we have, therefore, been compelled to pay some little attention to it. What is the action of light, or heat, or exposure on the tinctures and extracts and solutions and oils in everyday use? There is not a pharmaceutical establishment with which we are familiar which is fitted up on principles taking any account whatever of these forces, and yet we can prove them to be important factors in the preservation, composition, and quality of these and many other preparations. Take, again, another department with less of the scientific in it, but one equally practical, and, in its own place, equally important. The presentation of pills with a uniform and elegant appearance, with taste and smell disguised, and yet retaining all their active properties, has long been a felt desideratum. With the exception of gilding, no plan proposed has as yet met with general acceptance, if we except the plan of “pearl coating” which has lately been introduced and favourably received in many quarters. We ask, however, if it is a solution of the problem which, as conscientious pharmacists, we can accept or commend, this coating them with an insoluble silicate? Take another and lower department still. If a dose of castor oil, or turpentine, or cod-liver oil, or any other substance of an equally nauseous character, were asked for, in how many cases would elegant pharmacy be the distinctive feature? We venture to assert that in the majority of instances it would not be attempted, and where attempted it would more than probably be a failure. We have a vivid recollection of once trying some advertised cream, or honey, or emulsion, celebrated in its day (we forget the name), which tasted so abominably of stale custard disguised in bitter-almond flavour, that we have been imbued with a thorough dislike to every form of light pudding ever since. We might take any other department—indeed, every other department—and criticise it in a similar manner, for in none has the spirit of investigation been exhausted, while in many it has not even been begun. We remember receiving a lesson which will never be forgotten, and, as bearing on the point before us, the reminiscence may be useful. We were once an involuntary witness in a case of life and death—death, as it happened, to the culprit concerned—to give evidence as to the preparation, strength, and so on of a poison supposed to have been administered with felonious intent. The duty which we had to perform was simple enough, as the drug was well known to us in all its history, but the fear of making any mistake

and receiving a heckling from counsel was such, that we referred to every authority on which we could lay hands hearing on its history, preparation, dose, &c. We were then, and have often since been, astonished (and this is the point of the reminiscence) at the amount of information which, in circumstances such as these, may be gained, if not for the first time, at least brought back to memory where it had been forgotten. The most familiar substance will be presented to us in some aspect or another quite new, and we shall in every case add something to our knowledge, however well we may have thought we had previously known the subject. We are too apt to forget that it is the maximum, and not the minimum, of information regarding every substance that we ought to be in possession of. A philosopher may have the most modern adaptations of science to all his instruments, and the artisan may have the finest of edge-tools, but if neither know perfectly how to use them, they are to a great extent lost to them. In like manner, with imperfect knowledge and skill, we may have in our establishments the purest of chemicals and best of drugs, but in using them our whole procedure will necessarily be mechanical and baphazard to a great extent.

Equally true is the further fact that there is no subject or substance so thoroughly threshed but some grains of truth or some important facts may still be discovered regarding it. We speak here, again, from experience. We have often taken up a subject simple in itself, and of which we might have been inclined to premise that no human ingenuity could extract anything new or interesting from it, and as often been agreeably disappointed. In fact, it is in the laboratory of Nature as in the laboratory of the chemist: we may read and study every author, but immediately we begin to examine and operate for ourselves we may discover fifty things which no author has taken notice of, or probably can take notice of. Not only so, but just as no two minds are constituted so as to look at and examine any subject exactly alike, so no two probably will bring out exactly the same facts, either isolated or in their relation to others. And, as bearing upon this point, we would suggest that every unexplained phenomenon in our every-day work should be taken notice of. Nothing should be passed by as uninteresting or unimportant, as no one can tell the results which may follow our so doing. An unexpected change or decomposition should be regarded as the danger-signal showing that something is wrong—something either in the substance itself, or in our knowledge regarding it, and either or both should be set right at the earliest moment. The conscience of the pharmacist in this, as in every other matter, should be so trained as to feel uneasy under anything uncommon and unexplained. We often hear the expression quoted, first uttered by a well-known statesman, "It is the unexpected that happens." In the ordinary life of the pharmacist there is seldom a day but something unexpected happens. If he keeps a note-book—and we would recommend every young man beginning his career to do so, as it not only fixes things on his memory, but the memoranda are also valuable for future reference—he might enter daily something interesting and useful. We take, for example, a leaf from such a note-book:—
 "Item.—Prescription dispensed containing iodide of potass, quinine, soda, and bismuth; yellow on mixing; found reaction between quinine and potass. Note.—To be further examined. Item.—Prescription containing 40-grain doses, three times daily, iodide of potass—found for aneurism—dispensed. Item.—Salicylate of soda mixture; turned pink on dissolving; found mortar apparently clean had been used, but iron preparation in it previously. Item.—Prescription containing simple ointment, hismuth, calomel, and

hydrocyanic acid—black; found acid added to hismuth and calomel before mixing with the simple ointment." We might go on *ad infinitum* giving examples, but they will doubtless be so familiar to every one that we consider it unnecessary. As a matter of fact, in the case of the first item just quoted, no notice could be found at the time of the nature of the reaction between the iodide of potass and quinine in any authority at command, but the decomposition was determined, as such ought always to be, before being dispensed, in case of anything being wrong with the ingredients, and an after investigation brought out several other important facts which have proved useful since. The second item requires no comment further than being one of those where the judgment and experience of the dispenser must both be brought into operation, whilst the last is one typical of those in which the reflective powers are called into exercise. A moment's reflection will here show that if the hydrocyanic acid be added to the calomel it will be decomposed, and therefore the calomel should first be added to the ointment and afterwards the acid, when, if decomposition takes place at all, it will be much slower. We have reserved the third item for special comment. We know of no more fruitful source of error and trouble than that of want of chemical purity. Complaints are not infrequent of the want of uniformity in the appearance of medicines dispensed, and while making every allowance for the peculiarly fickle nature of the ingredients, which often change the appearance of a mixture from the very order in which they are added, we are yet inclined to ascribe the complaint more frequently to the above cause. It is possible we may be wrong, but after learning that three out of every four students who present themselves for examination get into trouble with their test-tubes from this cause, and after an almost daily experience of cases similar to the one quoted, we guess we are not far wrong in our supposition.

And this brings us to the last point which we wish to touch upon for the present. In the everyday life of the pharmacist there is probably more of counter prescribing than the world dreams of. If he be an intelligent man, as he invariably is, or ought to be, he will be consulted on all and everything under the sun. He is expected to be a jack of all trades and all professions, and master of all as well. In these consultations there should be a mutual give and take, an interchange in short of experiences and opinions, in which he may get invaluable hints for future use. If the housewife consults him upon her preserves, she will, in return be willing to give him information which will be found in no book of cookery, or if the photographer consults him about his bath, he will in return gladly give him "tips" which will be found in no year-book of photography. This is the way. There is a higher sense still in which the pharmacist should draft his knowledge from every source and bring it to bear on his own immediate profession. We do not think, for example, that we knew what chemical purity properly meant until we dabbled a little in photography, and realised the delicacy of the silver film, with the annoyance of pin-boles, and we believe that our experiences in the dark room have unconsciously directed much of our after particularity on this point. Again, getting wisdom from the housewife is no mere chimera, as in a country dairy we received hints on the germination and death-point of Bacteria long before Tyndal performed his famous experiments in the same direction. And so we might go on enumerating every department of science and art, and showing how something might be learned from each. And in learning it and learning to apply it the pharmacist may rest assured that he is not only helping to raise,

is profession to the higher platform of which we have spoken, but he is also taking at the same time the best means for securing the "survival of the fittest."

THE BRITISH PHARMACEUTICAL CONFERENCE AT SWANSEA.

AFTER 17 years of wandering the Pharmaceutical Conference has found a sojourning place for the first time in the only division of the Empire where its claim to be British can be strictly admitted in an ethnological sense. The Conference has paid three visits to Scotland and one to Ireland since its foundation, and now it has satisfied the cry of Justice to Wales, if such a cry existed. The reception which the visitors met with in Swansea was as cordial as they have ever experienced, but it must have been evident that the labour of entertainment fell upon an unusually limited group. In respect of attendance the Swansea meeting compares very unfavourably with its predecessors for the past ten years, but as the British Association seems to have had a similar experience, this fact must not be taken as necessarily indicative of failing interest.

The definitive retirement of the chief organiser of the Conference, Professor Attfield, and the presentation of a testimonial to him as some recognition of his 17 years of labour on behalf of the Conference, was the event which stood out most prominently among the transactions of the meeting. It was characteristic of the oligarchic system on which the affairs of the Conference are managed that no information was given as to the amount subscribed for this testimonial; but it was gratifying to find whatever it was it was sufficient to purchase a collection of 500 volumes of general literature. Professor Attfield's speech in accepting this present was perhaps the best he has ever made, as it was, too, one of the best that could have been made on such an occasion. It was a happy variation from the recognised model "on receiving a teapot or piece of plate."

Mr. Southall, in his presidential address, also took a somewhat new departure, plunging into classical literature and digging about the very roots of the pharmaceutical art. In his hands the study has yielded many facts of interest, especially in regard to the etymology of many of the technical terms still in use among us. Anyone not wholly absorbed in the cares of the present may with profit and pleasure revisit the days of yore on a pharmaceutical excursion with Mr. Southall as a scholarly guide.

Our report will sufficiently indicate the character of the papers read and the discussions which followed them. It may be said that each paper added something to the sum of general knowledge, but it must be confessed that a great deal of machinery was exercised for a very little movement. At least half of the papers bear evident signs of having been ground out for the Conference. Several were old or recent observations furnished up for the occasion, and there was the usual proportion of advertisement contributions. The discussions, however, were fairly confined to pharmaceutical subjects, and were kept up with sufficient animation, especially considering the meagre attendance.

Professor Attfield claims that the Conference has achieved "a grand success" during the past 17 years, and no one is more entitled to speak with authority. Such a statement, however, challenges discussion. Few would assert that the Conference has been a conspicuous failure; but we fancy the truth does not lie much nearer one assertion than the other. The Conference has existed for one thing; that of itself is a notable fact; but it may be said that its existence even has been due as much to energetic and influential exploitation as to inherent vitality. It has enrolled over 2,000

chemists and druggists among its members, but it can barely get 20 of this class of members to travel 100 miles to attend its meetings. The majority of those who make up the contingent of visitors at the sessions of the Conference are not chemists and druggists at all. It has saved some 500 guineas out of its income—the most complete proof of all that it has not developed to any extent the spirit of experimental research, for, notwithstanding almost plaintive appeals, only one person drew on this fund last year for a research grant. That it has promoted friendly intercourse among pharmacists is unquestionable, but even here it is not certain that for really useful purposes chemists and druggists are more ready to pull together now than they were in the days when they fought the apothecaries or defeated Mr. Hawes's Poison Bill.

We believe, however, that the Conference has succeeded, and has done much indirect as well as direct service to the body pharmaceutical. Some of the members think it might do more. Dr. Symes, for example, suggested a very promising field for its energies in the appointment of a committee which should issue periodical formulæ for newly-introduced remedies, whose strength and composition at present widely vary. Such a committee would have no authority in the strict sense of the word, but if they fairly represented the chief houses in the trade, their recommendations could not fail to carry great weight, and they would confer an immense service on their less-experienced and often-puzzled brethren. Messrs. Schacht and Greenish rather warmly oppose the appointment of any such committee. If they have any substantial reasons for their opposition, these can hardly be said to appear in the remarks which they made. We have previously urged the concentration of some of the energies of the Conference on certain definite labour, and it seems to us that Dr. Symes has suggested a scheme which would concentrate and utilise the latent powers of the Conference in the most practical manner.

Pharmaceutical Chemistry.

ANALYSIS OF FATS.

DINGLER'S *Polytechnisches Journal*, August, 1880, contains abstracts of two useful articles upon fat analysis—the one taken from J. König's work on the "Chemistry of Food" (Berlin, 1880), the other from an article by Von der Becke, in the *Zeitschrift für analytische Chemie*, 1880, page 291.

König saponifies a weighed quantity of the fat to be analysed by mixing it with double its weight of oxide of lead and a sufficient quantity of water, to replace that lost as steam. The saponified mass is then repeatedly kneaded with hot water, then filtered, and the filtrate evaporated at a moderate heat. The residue is dissolved in alcohol, filtered, gently evaporated, and weighed as glycerine. The lead soap is dried, rinsed three or four times with ether, the ether distilled off, and the residue dried and weighed as oleate of lead. The residue, insoluble in ether, contains stearate and palmitate of lead, and is decomposed by adding some dilute hydrochloric acid. The whole is then shaken up with ether, and, after evaporating and drying, this residue is weighed to determine the amount of the solid fatty acids. Von der Becke has saponified a number of fats, some according to the above method, and some by saponifying their alcoholic solutions with caustic potash, the amount of the latter taken being about equal to the quantity of fat operated upon. The soap solution is evaporated to a syrupy consistence over a water-bath. The fatty acids are then separated by diluted sulphuric acid, converted into lead soap, and, as in König's method, separated by ether.

The acid solution is neutralised with potassium carbonate, dried at a moderate temperature, and the glycerine extracted by a mixture of ether and alcohol.

A method precisely similar to that with caustic potash consists in saponifying with caustic lime, the glycerine being extracted with water, and the residue treated with ether. The glycerine is in both cases dried in a desiccator over sulphuric acid.

The results obtained by Von der Becke are given in the table below.

g.—grammes	Butter	Cacao Butter	Tallow (Suet)	Fat (Grease)	Olive Oil	Rapeseed Oil	Linseed Oil	93 g. Cacao Butter 804 g. Butter	74 g. Cacao Butter and 666 g. Tallow
Amount treated with oxide of lead ... g.	14.30	16.34	16.42	14.20	15.00	10.00	10.00	17.17	14.66
Oleate of lead formed ... g.	5.20	12.16	16.14	7.85	—	—	—	6.02	12.25
Containing lead, per cent. ...	43.69	33.52	43.23	40.90	39.54	—	—	42.09	37.02
Therefore = oleic acid ... g.	2.92	7.94	9.16	4.64	—	—	—	3.49	7.71
Do. do. per cent.	20.61	49.05	55.82	32.08	—	—	—	20.28	51.83
Solid fatty acids found ... per cent.	72.33	50.54	46.10	65.95	—	—	—	73.41	47.54
Glycerine found, per cent. ...	7.98	0.23	0.11	6.00	5.76	4.20	4.40	8.15	0.09
When treated with caustic potash—									
Oleic acid found, per cent. ...	38.06	32.03	42.12	20.44	—	—	—	—	—
Solid fatty acids found, per cent. ...	44.62	64.27	63.16	60.78	—	—	—	—	—
Glycerine found, per cent. ...	10.53	5.99	7.84	8.27	6.41	4.59	6.00	—	—
Treated with caustic lime—									
Glycerine found, per cent. ...	7.99	2.19	2.43	9.27	—	—	—	—	—

According to the above results it is obvious that the analysis of fats by J. König's method alone does not hold good for all fats, and in order to obtain reliable results as to the quantity of glycerine contained in a fat, the caustic potash treatment must be adopted. The high percentage of lead found in the lead salts soluble in ether, which was in nearly every case higher than that which would be represented by oleate of lead, is to be attributed either to the formation of basic lead compounds, or to the presence of several fatty acids.

PILOCARPINE AND JABORINE.*

DRS. HARNACH AND MEYER have examined the chemical and pharmacological properties of commercial pilocarpine, and the result of their researches has led them to the conclusion that a new alkaloid, which in lieu of a better name they have called "jaborine," is contained, together with pilocarpine, in pilocarpine of commerce, jaborine being, in fact, formed out of pilocarpine. According to the authors, pilocarpine is in its physiological effects analogous to nicotine, while the effects of jaborine they found to be identical with those of atropine. The separation of jaborine and pilocarpine is based upon their different degrees of solubility in various menstrua, the separation being facilitated by the non-crystallisable property of the jaborine compounds.

The presence of jaborine in commercial pilocarpine was indicated by the action of the latter upon a frog, traces of jaborine causing spasms of the heart. Pure pilocarpine the authors found to contain no jaborine. After having, by means of its physiological effects, determined the presence of jaborine in commercial pilocarpine, the authors set to work to prepare it in at least sufficient quantity as to enable them to experiment upon it. The raw materials selected for this purpose consisted in part of jaborandi leaves and partly of the so-called false jaborandi, *piper reticulatum*, and other kinds of pepper.

Not having been able to obtain jaborine in a state of perfect purity, the authors have not been at present able to represent it by a formula.

Jaborine is a very strong base, differing from pilocarpine by being difficultly soluble in water and easily soluble in ether. Its salts dissolve readily in water and alcohol, and are not crystallisable.



GREAT DRUG CONSPIRACY AND ROBBERIES.

On Friday, August 13, at the Central Criminal Court, before the Common Serjeant, Thomas King, 51, night watchman Henry Harbord, 57, a convict (who was brought to the Court from Pentonville Prison by a warder); William Harbord 47, an engine-driver; Richard Henry Mott, 22, porter Charles William Fryer, 22, porter; and Thomas Bennett, 29, porter, were indicted with having conspired with a man named Stevens, now a convict, and others not in custody, to rob Messrs. May & Baker, Battersea, manufacturing chemists of large quantities of red and white precipitate, calomel and bismuth, and Messrs. Morson & Son, manufacturing chemists, Southampton Row, of 300 oz. of morphia, quantities of opium, and other drugs and chemicals.

Mr. Poland and Mr. Montagu Williams appeared for the prosecution; Mr. Horace Avory defended the prisoner King and Mr. Forrest Fulton defended Mott. The other prisoners were undefended.

The prisoners severally and individually pleaded "No Guilty."

Mr. Poland, in opening the case for the prosecution, said Thomas King, Henry Harbord, and William Harbord were charged with conspiring to steal large quantities of drug and chemicals from the premises of Messrs. May & Baker manufacturing chemists, at Battersea; and on the second count of the indictment all the prisoners were charged with conspiring to steal drugs from Messrs. Morson & Son, the well-known manufacturing chemists, of Southampton Row Holborn. Messrs. May & Baker had large premises at Battersea, which abut on the river, and the first prisoner (King) was the night watchman at 30s. a week wages William Harbord was watchman and engineer at Messrs. Whiffen's, who occupied premises near those of Messrs. May & Baker, at Battersea; Henry Harbord was the brother of William, and was formerly in the employ of Messrs. May & Baker. Henry Harbord, some time before these robberies communicated with William Stevens, now undergoing sentence for stealing some of the property of Messrs. May & Baker, and who had been employed with him at Pink's pickle factory. Henry Harbord asked Stevens if he wanted to make any money, and that man saying he did, Harbord told him he could get a quantity of drugs through the night watchman, King, from Messrs. May & Baker's. It was arranged that Stevens should be introduced by Harbord to King, and the introduction took place about Christmas 1878, when Henry Harbord introduced Stevens as his "pal," and as a man he could trust his life with. King, having a bad foot, said he should not do anything until after Christmas, but the arrangement was that Stevens should go to the premises of Messrs. May & Baker about half-past nine at night, that being the time when the police in that locality were changing their beats. He should be able to prove that Stevens used to go to these premises constantly, and that he received from King, whose duty it was to protect his master's property, large quantities of precipitates, bismuth, and calomel. That sort of thing went on for some time without any suspicion falling on King or the prisoners. William Harbord's part in the conspiracy was this. It was found necessary to have a place of deposit for the stolen goods, and William Harbord, the brother of Henry Harbord, occupied a house in Hope Street, Battersea, near Messrs. May & Baker's works. Stevens received the property from King, and took it night after night to William Harbord's house, and the next morning Henry Harbord and Stevens took it away and disposed of it to a man named Clarke at Tower Hill. Clarke had absconded. In the month of October, for instance, Stevens and Henry Harbord received as much as 40*l.* to 50*l.* from Clarke for this stolen property

* (Liebig's "Annalen der Chemie," Band 204, Heft 1, July 31, 1880.)

the average amount they made was about 5*l*. a week. William Harbord used to receive 10*s*. a week for the use of his house. In June, 1879, a curious incident took place in the history of these robberies. Henry Harbord and Stevens were taken into custody at New Cross for having in their possession some white powder, which undoubtedly was a portion of the property stolen from Messrs. May & Baker's. The two prisoners persuaded the police that it was white lead, and although they were charged at Greenwich Police Court with unlawful possession, nothing could be found out about it, and they were ultimately discharged from custody, and the white powder restored to them. Eventually, owing to some inadvertent remarks of Stevens to a man named Carpenter, Henry Harbord and Stevens were arrested on December 5 at Waterloo Station, and they at the time had with them a large quantity of calomel. This was some of the white powder which had been in their possession since the previous June, and it appeared that when they were discharged from Greenwich they took it to William Harbord's house, and left it there all the time. They were tried at the Old Bailey for stealing this calomel, and sentenced to five years' penal servitude. At the trial William Harbord came forward and swore it was true that the calomel came from his house, and that it had been there since June, 1879. Another remarkable point was that Messrs. May & Baker used to include King in the charge, because he was a man whom they had great confidence, and did not believe he would do anything of it. After the conviction, however, Stevens made a statement, and said it was through Tom King that they got all the goods away. That was a summary of the first part of the case. The second count of the indictment concerned the other prisoners as well as the first three. It appeared that while the scheme of fraud which he had mentioned was going on it was thought by H. Harbord that a reader could be found for better chemicals, more expensive than calomel, bismuth, and precipitate, and he thought they might get drugs from Messrs. Morson & Sons. Richard Henry Mott was a person who used to fill bottles at Messrs. Morson's, and Stevens got into communication with him, the result being that the prisoner Mott sent out drugs and hampers from Messrs. Morson's to Stevens' lodgings. It appeared to have got wind at Messrs. Morson's, and the prisoner Fryer, who was familiarly known as "Little Jerry," suggested that he should come into the swim, or he would split on Mott. Fryer was a packer, and between them Stevens got a large quantity of morphia, opium, and other drugs. With regard to the other prisoner, Thomas Bennett, he also appeared to have gone into this conspiracy. In the way he had described, Stevens and Harbord obtained no less than 300 oz. of morphia and 50 lbs. or more of opium in November alone. When these prisoners were taken into custody Fryer said he knew he had done wrong and he must bear the punishment, but that it was only petty theft, and not conspiracy. There was no doubt, however, that there was conspiracy, and the evidence of William Stevens, who had been brought from Pentonville Prison, and would be put into the witness-box, would be fully corroborated.

William Stevens, a convict under sentence of five years' penal servitude at Pentonville, was the first witness. He said:—After my conviction I communicated with Inspector Phillips and made a statement. I afterwards saw Mr. Fryer, of the firm of Messrs. May & Baker. In 1877 I was employed at Pink's pickle factory, Long Lane, Bermondsey, where I became acquainted with Henry Harbord. In the following January I kept a coffee-stall at Dockhead, Bermondsey, and I lived in that way until September of the next year. In September, 1878, Henry Harbord came to my house and asked me if I wanted to make some money. I said, "Why?" and he replied that he had a friend who could get any quantities of chemicals. I said what was the use of getting them unless we could sell them. He said he could sell them. I afterwards went with him to see King on the Saturday before Christmas, at 12.30 in the day. We met King in the street. Harbord said to King, "This is my pal," and King asked, "Is he a sound one?" to which Harbord replied, "Yes, you can trust him with your life." King would not do anything before Christmas, as he had a bad leg. On the first Monday in January, 1879, at half-past 9 at night, which King said was a quiet time, because the police were changing duty, we

went to William Harbord's house. I left Henry Harbord at William Harbord's house, and went alone to Messrs. May & Baker's premises. I went to get some red precipitate and bismuth. I saw Tom King there at the gate; I went inside. I brought with me two bags, which he filled with red precipitate; it was powdered. I saw him fill the bags: there were 70 lbs. in the two bags. I took the bags to William Harbord's house, and we then took them to my house, Bell's Court, Bermondsey Street, the next morning. I arranged with Tom King to go down again on the Tuesday night. King asked which I wanted—red precipitate or calomel. He said, "We will have some lumps to-night," and we got 60 lbs. in lumps. King weighed it. I told him that Henry Harbord wanted some bismuth powder, and he said he would look round for it. I was to come on Thursday, and to wear a smock-frock, and carry a tea-bottle in my hand. He said people would think I had just left work if I was dressed like that. I went again on Thursday, and he gave me some white powder, which I took to William Harbord's house. I told King it would be sold the following day. He said, "That's right; I want some money." The next day Henry Harbord came to my house at half-past nine in the morning, and we went out together to sell the white powder. We took it to a chemist named Freeman, in the Kennington Park Road. Harbord went into Freeman's shop by himself, and when he came back he said he had sold 14 lbs. of the red precipitate and 14 lbs. of the bismuth. I said that was not much good. I went with him to take the stuff. We went to Kennington Park Road to Freeman's. Mr. Freeman told us that he wanted more expensive chemicals, such as morphia. We received 3*s*. a lb. for bismuth, and 1*s*. 6*d*. a lb. for red precipitate. Harbord gave me a sovereign for my share. Harbord afterwards said to me, "You have been working at chemical works, have you not got any pals?" I said, "No." A few days afterwards I saw Henry Harbord, and arranged to go to Tower Hill, to the Old George public-house. We met James Clarke there, who paid us six sovereigns, which were divided between us. The money was for chemicals. King had his share. On the following Monday Harbord gave me four bags, which I gave to King. I stopped at William Harbord's house until nine o'clock at night when I went to May & Baker's. I saw King there with the bags full of bismuth powder. Each bag contained 30 lbs. I could not carry it all at once. I took them in two journeys to W. Harbord's house. The next morning it was taken to my house and afterwards to Tower Hill, and Jas. Clarke gave us 6*l*. for the powdered bismuth, or 1*s*. per lb. We had to give William Harbord something, because he would not allow us to use his place without. We went frequently to May & Baker's, one week as often as five times. We made as much as 5*l*. a week each sometimes, but it was generally 3*l*. a week. We paid William Harbord 10*s*. a week for the use of his house. On one occasion Police-Sergeant Francis stopped us at New Cross; it was on June 13. We had some white powder (bismuth) with us; we said it was white lead. We were taken into custody and taken before the magistrate at Greenwich. We were ultimately discharged and the white powder was restored to us. We sold the bismuth to the man Freeman in the Kennington Park Road. He had 30 lbs. of it, and 36 lbs. of the same lot were sold to Clarke. We went to Messrs. May & Baker's factory up to August. Tom King then told us that Mr. Tyrer, one of the governors, had said there was a thief on the premises and he would catch him. I told Henry Harbord of this, and we did not go there again for a month. We went there again in October, November, and December. We sold in October a good deal of stuff to Clarke, who paid 45*l*. for it. That was about one-third of its value. In December I was training for a running match. A man named Carpenter trained me. We gave him a sample of these chemicals, and asked him if he knew anyone who wanted any. He told us afterwards that he wanted some, and in consequence of that we got 98 lbs. of calomel. We brought it to Waterloo Station, where a policeman took us both into custody. We said it was white lead, but the policeman said, "That tale won't do this time," and took us to the police-station. Wm. Harbord was called at the trial, and he swore that the powder was the same as that we had when taken into custody at New Cross. When we brought lumps of chemicals away from Messrs. May & Baker's we used to crush them to powder. The way we did it

was to put the lumps inside a large sheet of paper and roll it with a bottle. My wife went with me several times when I went to Battersea, and waited for me at William Harbord's house while I went to Messrs. May & Baker's. At one time I lived at Arthur Street, Walworth. I sometimes saw an old man named "Old Wright," who was a pal of King's. Henry Harbord said he became acquainted with Clarke through Jim Smith, with whom he used to lodge. Clarke used to go to Jim Smith's house. We got some quicksilver, and sold it for 15*l.* a bottle. I told this story to Inspector Phillips, at Pentonville. I used to work in the same employ with Mott at a wholesale chemist's in Aldersgate Street. I met him in 1879, and he said he was working at Morson's. He asked me what I was doing, and I said I got calomel and other things from a pal. He asked me what was the good of that stuff, and I told him I and Henry Harbord had been selling it "on the cross." He said he should like to have some money himself. I asked him to meet Henry Harbord and myself in Holborn the next day. We met accordingly, and went to the Ship public-house. We made an arrangement with Mott. He was to bring out chemicals from Morson's every day at dinner-time. He did bring them out, and we sold them to the man Freeman in Kennington Park Road. The money we received was equally divided between Mott, Harbord, and myself. Bennett was working at the same place as Mott, and Mott introduced him to me in July last year. He used to bring out hampers of chemicals and deliver them to me, or send them to my house by parcels delivery. We sold these chemicals to the man in the Kennington Park Road, and we shared the money. 10*l.* was the largest sum we ever made in one day. I saw Fryer, who was called "Little Harry," in August. He said he saw the little game going on, and if I did not sell some things for him he should round on us. I said I would sell all he brought out, and in October he brought me a good deal of morphia. We paid him 2*s.* an ounce for it; we got 5*s.* an ounce for it ourselves. H. Harbord and I divided that profit. In November Mott said that the goods were missed, and there had been a bother about it, and so we had better be quiet for a month or two. In December Mott told me he had been "turned over" by the police. That means that he had been examined and searched by the police.

Cross-examined by Mr. Ivory: William Harbord and Thomas King were witnesses at the first trial.

Henry Harbord cross-examined this witness with a view to show that his past history rendered him untrustworthy.

Elizabeth Maria Stevens, the wife of the last witness, gave evidence which confirmed many of the statements of her husband. She had seen her husband bring home red and white powder, and sometimes lumps of the same sort of stuff. He brought this stuff three or four times a week. She knew a James Clarke who was called "Old Uncle." He frequently came to the house. She also knew the other prisoner, and described how hampers used to come addressed to her husband, by the Parcels Delivery Company. About two a week used to come. Her husband brought home small bottles with Morson's name on them. The hampers came from the chief delivery office, Holborn. Fryer used to come to the place. She knew him as "Little Harry." He brought morphia in a paper. He only came there twice. Twice in Holborn she saw Fryer meet her husband and give him parcels. She once took some money wrapped up in paper to Fryer, whom she met at the Elephant and Castle. Fryer took it, said, "Thank you," and went away.

Arthur Mitchell, builder, New Cross, Henry Harbord's landlord, was present at 12 Flackman Street, the place where Harbord lived, when the police found some red precipitate under the floor.

William Roper, landlord of the Bay Horse public-house, Ebury Street, Pimlico, and a former employé of Messrs. May & Baker, said that about 12 months ago Henry Harbord brought him a sample of red precipitate. He said he was connected with a new firm just started, and he asked witness if he could sell any of it. He offered it at 2*s.* 10*d.* a lb. Witness asked for the new firm's card. The red precipitate was worth 4*s.* a lb. wholesale. Harbord afterwards showed him some sulphate of quinine, but he never told witness the name of the firm. Witness communicated with Messrs. May & Baker on the subject.

James Carpenter, painter, 42 Baleston Street, whose information had led to the arrest of the prisoners, narrate the circumstances of his acquaintance with their proceedings (C. & D., Feb., 1880). He said: Stevens asked me if I could get rid of any of the stuff for them, and I said I would see. They told me they got it through a pal named Tom King, from Messrs. May & Baker's, and that they had a place where they left it overnight. I communicated with the police and then arranged to meet them at Waterloo Station on December 5, when they promised to bring me some stuff. On that day Inspector Phillips and Sergeant Wheatley went with me to Waterloo Station. At about half-past eight that morning, Stevens and Henry Harbord arrived by the train from Battersea. I saw them coming down the stairs carrying baskets and a bag. Inspector Phillips took them into custody.

Inspector Phillips said that after arresting H. Harbord and Stevens at Waterloo Station, he went to Steven's lodgings, and there found a hamper containing about 1 cwt. of white stuff. He also found, from a statement made by Stevens, about 1 cwt. of red powder. He also apprehended King, who said, "All right," when the warrant was read to him. While the prisoner was changing his clothes, he said, "I shall look well if I get as much as Harbord. Perhaps some other people will open their mouths and say what they know now."

Detective Wheatley deposed that when Fryer was apprehended he said, "I am very sorry; I never was in such a position as this before. I don't know what my friends will say. I know I have done wrong, but it was all through others." Henry Harbord had said that the white lead he had when apprehended was what he had received from a man for a debt. On examining the prisoner's house he found a quantity of white and red precipitate, and some quinine. There were two bottles bearing the label Messrs. Morson.

Mr. Tyrer said he was one of the firm of Messrs. May & Baker. They were manufacturing chemists of Battersea. The firm was of 50 years standing, and he had been connected with it for 20 years. [A model of the premises where produced, and the witness explained it to the Court.] The prisoner, Thomas King, had for some time been a watchman in his service; he had been in the employ since February, 1876, and was in receipt of 30*s.* a week. Henry Harbord had also been in his employ for years. Witness had entire confidence in King, who had charge of the premises. To go into the warehouse it was necessary to ascend six steps, then go through three doors and then up a flight of steps. That would be the part of the premises where the "lumps" were kept. Proceeding through some iron doors would be where the red precipitate was kept to dry. King would be on duty from about 5.30 in the evening until six or half-past in the morning. On Saturdays he would go on duty about middle day. In the month of December Inspector Phillips showed him two bags, each containing 28 lbs. of white calomel. It was not finished, but was in process of manufacture. The article was such as he was manufacturing in November and December. Other firms manufactured calomel, but he was absolutely able to state that this was his manufacture. Subsequently witness had a conversation with the inspector about Henry Harbord, who, he said, had stated that he had not seen witness since he left his service. King had a broken leg in the May of 1879. Witness remembered this because he wrote an order at the time for some extract of sarsaparilla. There was an old man in his employ called "Old Ike," at a man named James Smith. The value of calomel was about 3*s.* per lb., bismuth would be 6*s.* 10*d.* per lb., and red precipitate from 3*s.* to 3*s.* 2*d.* per lb.

Mr. Poland: If the prisoners sold the precipitate for 1*s.* 10*d.* it would be very cheap?

Witness: It would indeed.

Continuing his evidence, the witness said a quantity of drugs were missed in the year 1879.

Cross-examined by Mr. Ivory: Harbord would know King well, both of them having been in his service. The whole of the premises would measure about 2½ acres, and the manufactory would stand upon about one-half of the King's duty was to look generally after the works, to look after the fires, which upon an average would number about 32 or 33. There was a high wall on the river side of the

houses, about 13 feet in height. King would not have charge the keys of the premises, except as some of the workmen at give them to him in case of anything requiring attention. He would also have to see to the dissolving of mercury. This, however, he would have assistance if the work was heavy; he would be engaged at this of work say from 10 to 12 o'clock. Some one told witness that a man had been to the factory one night and to get in, and he spoke to King about it, who conceded the statement. Witness had at times visited the houses during the night, and had generally found King where he should be, at his post. Witness did hear King say to the police court that he knew nothing of the goods being stolen, and knew nothing of their being taken out of the factory.

By the convict Harbord: Had been in the habit of taking stock with Mr. Baker for years. In 1879 he took stock of mercurial goods himself. He only took stock once between December 5, 1879, and January 16, 1880.

Prisoner: Did you not swear that you missed 100*l*. worth of stock in the early part of the January?

Witness: No, I did not.

Prisoner: Mr. Baker, your partner, said you had taken stock three times, and it was stated that you had missed stock amounting to 100*l*. or 102*l*.

Witness: Not between December 5, 1879, and January 16, 1880. I can speak to having lost 1 cwt. of goods.

Re-examined: It was after the arrest on December 5 that I found we had lost 103 lbs. of calomel, the value of which was 16*l*. The calomel had been taken between November 8 and December 5.

By the Convict: Did I not work for you 11 years?

Witness: Yes, you did.

By the Convict: Did ever I absent myself?

Witness: Yes.

By the Convict: When?

Witness: When you were drunk.

By the Convict: Wasn't I nearly poisoned twice, and nearly sent to death once, by you?

Witness: No; I don't know that.

By the Convict: Was I not injured with antimony?

Witness: We were carrying on some mercurial experiments, and I suffered equally with you.

By the Convict: Was not Roper and me nearly poisoned with cyanide of potassium?

By the Witness: You were none the worse for it.

By the Convict: After you thought you had got the best out of me you discharged me. Never mind, there is a little life in me now.

By Mr. Avory: The wall of the premises on the river side is 13 feet 6 inches high. It would be difficult for anyone to get over it, but not impossible if they had the mind to do so. At high tide the water sometimes rose to within 2 feet of the top of the wall.

Robert Taubman said he was manager at the firm of Messrs. Morson, carrying on business at Southampton Row, Holborn. The prisoner Mott had been in the firm for about 10 years. His work was to put up goods. He would have access to the chemicals. Fryer was also in their employ, and he, too, would have access to the chemicals. Bennett was a packer, and would have access to the goods in question. In the October of last year witness missed a quantity of opium. About the same time morphia was missed. To that extent he could not exactly say, but for certain it was 10 oz. in one month. On one occasion Mott was searched, and nothing was found upon him. Between June 13, 1879, and October 25 of the same year, no less than 200 oz. were missed. Witness went to Stevens' house, and there were some bottles. One contained pepsine and another some veneges. Those goods belonged to his firm. In consequence of a statement by Fryer's mother witness went to the House of Detention, and there saw the prisoner Fryer, who made the following statement:—"I have done wrong, and I am willing to suffer for it; but I do not think I ought to be punished for others. I did not take a tenth part of the property which has been taken." Witness said he asked Fryer what he had taken, and he replied, "Morphia, opium, and a little quinine." He asked what he had done with the goods, and Fryer said, "I gave them to Stevens." Witness asked what Stevens did with it, and the prisoner said he sold it to a man named Freemau. Witness asked

him if he (prisoner) had helped the others in taking the things out of the warehouse, and he said no; what he had done he had done on his own responsibility. Fryer also said that he did not go to Stevens, but that he met him at a public-house. Freeman was a chemist. Mott would be left alone at times during the dinner hours: that would be between the hours of 1 and 2 o'clock. Fryer would be engaged on a lower floor, and would not be left alone.

By Mr. Fulton: Mott had been in the employ of Messrs. Hodgkinsons, in Aldersgate Street, and left with a good character.

By the prisoner Bennett: Mr. Morson did not make it a practice of taking all the opium away in a cab the day after it was received at the warehouse. There was 29 oz. of this article in stock on June 30, and although none had been sold between that date and October 1 of the same year, when he went to look for it it had all gone.

Prisoner: Was I not discharged on suspicion on October 1, 1879, and did you not write a letter to me offering to give me a character?

Witness: From the statement of the man Carpenter, we had no suspicion of you, and then it was that I offered to give you a character.

Alfred Child, of Cromer Street, said he was in the employ of Messrs. Morson. On November 12 he went to a coffee-house and there saw Mott and Fryer. While he was there Stevens and the four went to a public-house.

By the prisoner Fryer: They had gone out to dinner on the day referred to.

Stevens asked him a number of questions, and then inquired if he (Child) could get him any "o. p.," meaning opium. In the mouth of September Stevens met him on the Holborn Viaduct, and said he had a good shop to get rid of anything. Witness said he could not do that.

Edward Lane, of the London Parcel Delivery Company, proved delivering a hamper, which had come from Red Lion Street on September 3, at Stevens' house.

Detective Wheatley, recalled, said he knew of a man named Clarke; he had tried to find him, but could not.

Mr. Montagu Williams, addressing the jury for the prosecution, said: Mr. Avory would probably tell them that the prisoner King had been so much engaged during the night in attending to the fires that it would have been impossible for him to have committed the crime with which he was now charged. He trusted, however, that the jury would see the fallacy of such an argument. King was in charge of the premises, and some one must have got the property ready to be taken away the next day. The loss of property, it should be remembered, had extended over nearly the whole of the year 1879. Stevens never could have been there as he was unless King had permitted it. He knew all about the premises, even to the three iron doors which had been spoken of. The evidence of Stevens, although a convicted person, had been corroborated by one of the partners of the firm in the witness-box to-day. As regards "Old Uncle" (the receiver, Clark), he should have liked to have seen that old relative one of the happy family now in the dock, for he was the man who had been buying the property at about one-fifth of its proper value.

The learned counsel went through the evidence which had been submitted, pointing out what he considered were the proofs of conspiracy.

Mr. Avory addressed the jury for the prisoner King, and urged that it was of the utmost importance that they should not believe one word which the convict witness Stevens had said, unless it was fully substantiated by corroborative evidence. The convict had himself admitted that he had done no work for 12 months, and altogether there could be no doubt but that he was a most disreputable character, and had done what he had simply out of spite, malice, or revenge. Allusion had been made by Mr. Williams as to the character of Henry Harbord, but what about the witness Stevens? Surely he was as bad if not worse than the other. King was a man who had been an irreproachable character. He had been in the service of the firm for a long period, had given evidence for the firm in the previous prosecution, and remained in their service until arrested. It was not at all probable that he would be likely to be influenced by that dangerous specimen of humanity Stevens.

Several gentlemen gave the prisoner King an excellent character.

William Harbord called Mr. Thomas Whiffen, quinine manufacturer, of Battersea, to speak as to character. Mr. Whiffen said the prisoner had been in his employ for 26 years, during which time he had always found him honest and trustworthy.

Henry Harbord (the convict) called Sergeant Rooke, 14 M, as to character. He said he had known the prisoner for 18 months, and did not know of his having been in trouble before this case.

Prisoner: You never knew me to come home late?

Witness: Oh, yes, several times. (Laughter.)

Prisoner: But you never knew me to be drinking about?

Witness: Yes, I have known you to come home the worse for drink several times.

The convict then addressed the jury on his own behalf, and was followed by Fryer, who admitted having stolen some of the goods, but denied the conspiracy. He did not suppose that he had gained more than about 2*l.* 15*s.* or 3*l.* for what he had taken from the firm.

Mr. Fulton, on behalf of Mott, contended that the jury could not possibly rely upon the evidence of the convict Stevens; and the evidence of several witnesses went indirectly to show that Mott had not been a party to the crime with which he was charged.

Mr. Watson, of Clarges Street, and Mrs. Berry spoke as to Mott's character.

The learned judge, in summing-up, pointed out the two indictments upon which the prisoners were charged. They were not upon their trial for the larceny committed, but for conspiracy. That could not, of course, be committed by one person, but must be the conniving of two or more. It might not only include the whole of the prisoners at the bar, but others. The overt acts stated in the evidence were not the crime now charged against these men, but were the evidence of the crime said to have been committed. With regard to the prisoner Bennett, the prosecutors had withdrawn the charge against him, therefore they would have to find him not guilty. They would have to discriminate between the five other prisoners, as to how the evidence told against them. The case against King no doubt rested very much upon the evidence of the convict Stevens, and the value the jury might place upon it. The evidence of a convicted person was always to be received with doubt unless there was undoubted corroborative evidence; some of the judges had held that it was necessary to have corroborative facts. It was for the jury to determine whether the corroborative evidence in this case was sufficiently strong for them to rely upon it. In arriving at a verdict they would have to bear in mind that King and W. Harbord were the prisoners charged under the first count, which was in connection with the robbery from Messrs. May & Baker; and Henry Harbord, Fryer, and Mott, in respect of the robbery from Messrs. Morson. Having gone through the evidence in detail, the learned judge left it to the jury to find their verdict.

Mr. Montagu Williams said the prosecutors would withdraw the charge against Bennett, who was thereupon discharged from custody.

The jury retired to consider their verdict, and after about half-an-hour's consultation they returned a verdict of guilty against King, W. Harbord, and Henry Harbord, upon the first count, and against Fryer and Mott under the second count.

Mr. Williams asked that judgment should be stayed until next sessions, in order to give the prosecutors time to consider whether they would further proceed against the prisoners on a charge of felony.

The Common Serjeant said he would accede to the application.

The convict Harbord being now under a sentence of five years' penal servitude, for robbing Messrs. May & Baker the learned judge at once dealt with his case by passing upon him a sentence of 11 days' imprisonment.

The prisoners were then removed.

The prisoners were brought up for judgment on Tuesday, August 14, before the Common Serjeant, who, addressing them, said they had been convicted of stealing a large quantity of drugs and chemicals. Fortunately for them the prosecution had only proceeded with the charge of con-

spiracy, for, had they gone into the graver charge of felony it would have been his duty to have sent them into penal servitude. He regretted that the state of the law did allow him to sentence them to hard labour, but he would inflict on each of them the highest penalty, which was they should be imprisoned for two years.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—I am instructed by my client, Mr. Richard Freeman, of Kennington Park Road, pharmaceutical chemist, to acknowledge the receipt of your letter to him of the 8th inst., and to thank you for affording him the opportunity of denying the statements of the convict, William Stevens, made on the trial of certain persons on the 13th ult. "Great Drug Conspiracies and Robberies," so far as affect my client, who does not know, has not seen, or any dealings whatever with, the convict Henry Harbord Mott. Mr. Freeman has been in business for over 43 years at his present address, and the whole of his dealings made in a perfectly straightforward manner, and I am, in his part, instructed to give an unequivocal denial to statements concerning the alleged sales made to my client at the trial.

I am, sir, your obedient servant,

W. ARNOLD,

Solicitor for Mr. Richard Freeman,

Town Hall Chambers, Southwark, S.E.,

London, September 13.

ZOEDONE.

IN the Chancery Division of the High Court of Justice August 25, a motion was to have been made to Mr. Justice Pollock, sitting as Vacation Judge, for an injunction behalf of the Zoedone Company to restrain defendant the name of Ross, from committing an alleged infringement of the plaintiff's patent. Mr. Digby Seymour, Q.C., appeared for the plaintiffs, said it was not intended to move the motion then, but by consent it had been arranged that the motion should stand over. It originally came before Vice-Chancellor Malins, and was an action claiming an injunction against defendants for infringement of a patent for making a popular beverage called Zoedone, and alleged infringement consisted in the defendants making substance called Hezodone. When the motion came before it stood over for answers to affidavits. Those since been filed, and the application now was that the motion should again stand over till the first motion day in November sittings, affidavits to be filed by both sides at that time. Counsel for defendants appearing and consenting, Mr. Baron Pollock ordered the motion to stand over till November.

Trade Notes.

MINERAL WATER TRADES EXHIBITION.—The original and only genuine Soda-water Machinery Exhibition is to be held at the Holborn Town Hall, Gray's Inn Road, on October 19, 20, and 21. This exhibition is under the management of Mr. E. M. Adams, 113 New North Road.

* *

WE REFERRED last month to a new catalogue issued by Messrs. Barclay & Sons, the quotations in which, we saw were *not* for monthly accounts. The intelligent reader would probably understand that the word *not* was a printer's error for *net*.

* *

THE CROWN PERFUMERY COMPANY have lately received the appointment of Perfumers in Ordinary to His Imperial Majesty the Emperor of Brazil, with a special brevet authorising them to use the Imperial arms. This distin-

which is rarely granted to foreigners, is only awarded manufacturers whose products have acquired a distinguished position in the Brazilian Empire.

* *

MESSRS. HARVEY, SHEPHERD & Co., of Charterhouse Square, have taken up the agency for Cartner's pill-coaters, and they have also introduced a new and cheaper form of pill-coater (Cortie's), to do small quantities, from a dozen upwards.

* *

THE CONSOLIDATED SOUP-FOOD COMPANY, of Castle Street, Finsbury, have introduced a carefully-prepared infants' and invalids' food, which they term "Valentia." Evidently there is a basis of lentils in this food, and, consequently, the nitrogenous elements are abundantly represented. The food is pleasant to the taste, and apparently very digestible.

Educational Information.

In giving particulars concerning pharmaceutical and medical education, we show first the requirements of the various bodies to which are entrusted the power of granting diplomas, and afterwards we give some particulars of the schools which especially furnish the instruction required.

PHARMACEUTICAL DIPLOMAS.

The right to practise as a chemist and druggist in Great Britain is, by the Pharmacy Act of 1868, restricted to such candidates as pass (a) the Preliminary Examination, and (b) the Minor Examination of the Pharmaceutical Society. The Major Examination is purely honorary, and on passing it the title of Pharmaceutical Chemist is obtained. Unlike the practice in medical examining bodies, no special curriculum of study is stipulated, candidates obtaining their knowledge wherever and where they please. Candidates for the Minor Examination must, however, produce certificates of having attained the age of 21 years; and also to the effect that for three years they have been registered and employed as apprentices or students, or have otherwise for three years been practically engaged in the translation and dispensing of prescriptions. The following are the

regulations of the Board of Examiners for the Examination and Registration of Pharmaceutical Chemists, Chemists and Druggists, and Apprentices or Students.

in accordance with the Pharmacy Acts, 15 & 16 Vict. cap. 56; 31 & 32 Vict. cap. 121; and 32 & 33 Vict. cap. 117.

THE FIRST OR PRELIMINARY EXAMINATION.*

(For Registration as "Apprentices" or "Students.")

This Examination is held throughout Great Britain on the first Tuesdays of January, April, July, and October in every year. Candidates for this examination must give not less than *fourteen* clear days' notice.

The examination is a written one, and comprises—
Latin.—Translation into English of a paragraph from the first book of Cæsar ("De Bello Gallico").
Latin Grammar.

English Grammar, Composition.

The first four rules of Arithmetic, Simple and Compound, Vulgar Fractions and Decimals, and a thorough knowledge of the British and Metrical Systems of Weights and Measures.

In the case of candidates residing in the country and unable to attend in London or Edinburgh, the Registrar shall send the questions, under seal, to the person appointed to superintend the writing of the answers, with instructions that they be opened by him in the presence of the candidates, who shall write the answers forthwith in his presence in a given time. The questions are prepared and reported upon by the College of Preceptors.

* Certificates of having passed the Local Examinations of the Universities of Oxford, Cambridge, or Durham, the Examination of the College of Preceptors, or those of any legally constituted Examining Body previously approved by the Council, *provided Latin and Arithmetic be included in the subjects*, are accepted in lieu of this examination.

THE BOARDS OF EXAMINERS IN LONDON AND EDINBURGH meet for conducting the Minor, Modified, and Major Examinations in February, April, June, July, October, and December. Candidates must give notice to the Registrar of their intention to present themselves, and pay the fee, on or before the first day of the month in which the examinations are held. A registrar's certificate of birth and a certified declaration (on a form which will be supplied on application) that for three years he has been practically engaged in translating and dispensing prescriptions must be produced by each candidate at the time of giving notice. Secretary and Registrar, in London, Elias Bremridge, 17 Bloomsbury Square, London, W.C. Secretary to the Board in Edinburgh, John Mackay, 119A George Street, Edinburgh.

MINOR EXAMINATION.

(For Registration under the Pharmacy Act, 1868, as "Chemists and Druggists.")

Candidates for this examination must have passed the First or Preliminary Examination.

The following form the subjects of examination:—

Prescriptions.—The candidate is required to read without abbreviation autograph prescriptions; translate them into English; and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of Posology; also to render in good Latin ordinary prescriptions written in English.

Practical Dispensing.—To weigh, measure, and compound medicines; write the directions in concise language in a neat and distinct hand; to finish and properly direct each package.

Pharmacy.—To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, and have well-marked physical characters, such as extracts, tinctures, powders, &c.; to give the proportions of the active ingredients and possess a practical knowledge of the processes, and the principles of the processes, by which they are made, and of the best excipients and methods of manipulation for forming emulsions, pills, &c.

Materia Medica.—To recognise specimens of roots, barks, leaves, fruits, resins, gums, animal substances, &c., used in medicine; give the botanical and zoological names of the plants, &c., yielding them, and the natural families to which they belong; name the countries and sources from which they are obtained, the official preparations into which they enter, and judge the quality and freedom from adulteration or otherwise of the specimens.

Botany.—To recognise the more important indigenous plants used in medicine. To possess a general knowledge of the elementary structure of plants, and the structure and distinctive characters of roots, stems, leaves, and their parts. To name and describe the various parts of the flower.

Chemistry.—To recognise the ordinary chemicals used in medicine. To possess a practical knowledge of the processes by which they are produced, the composition of such as are compound, and explain the decompositions that occur in their production and admixture, by equations or diagrams. To determine practically, by means of tests, the presence in solution of the chemicals in common use, and explain the reactions which occur in each case. To possess a general knowledge of the laws of chemical philosophy and a practical knowledge of the means of determining specific gravities, densities, and temperature, and of the instruments appertaining thereto and the physical and chemical constitution of the atmosphere.

MAJOR EXAMINATION.

(For Registration as "Pharmaceutical Chemists" under the Pharmacy Act, 1852.)

Candidates for this examination must have passed the Minor Examination at least three months previously.

Materia Medica.—This comprises a practical knowledge of the methods of estimating the value of important drugs, of obtaining their active proximate constituents in a separate state; of identifying them and ascertaining their purity or impurity by tests.

Botany.—This comprises an intimate acquaintance with the parts of the flower, fruit, and seed; the functions and mode of arrangement of the different organs of plants; a knowledge of the general principles of classification, and of the Linnæan and De Candolle's systems. The candidate must be able to distinguish practically between each of the following natural orders:—Ranunculaceæ, Papaveraceæ, Cruciferae, Malvaceæ, Leguminosæ, Rosaceæ, Cucurbitaceæ, Umbelliferae, Compositæ, Gentianaceæ, Convolvulaceæ, Solanaceæ, Atropaceæ, Labiate, Scrophulariaceæ, Polygonaceæ, Euphorbiaceæ, Orchidaceæ, Iridaceæ, Liliaceæ, Melanthaceæ, Gramineæ; and refer to their respective orders such specimens as may be shown to him.

Chemistry.—This comprehends an intimate knowledge of the laws of chemical philosophy, a practical knowledge of the nature and properties of the elements and their compounds, both organic and inorganic, especially those used in medicine or the arts. The different combinations and decompositions must be explained by equations; also the qualitative analysis of the more important chemicals, e.g., Nitrates, Chlorides, Carbonates, Sulphates, Phosphates, Oxalates, Tartrates, &c., and the detection of impurities in them, and the volumetric estimation of the strength of all Pharmacopœia preparations in which standard solutions are ordered to be used.

An elementary knowledge of the properties of light, heat, electricity, and magnetism is also required.

If a candidate fail to pass either of the examinations, the fee will be returned, less one guinea, but he will be admitted to a subsequent examination, after an interval of three months, on giving the usual notice and payment of the full fee.

Examination or Registration Fees and Subscriptions to the Society.

FEES.		ANNUAL SUBSCRIPTIONS on becoming connected with the Society.	
	£ s. d.		£ s. d.
First or Preliminary (Registered as Apprentices or Students)	2 2 0	Eligible, on application to the Council, to be elected Apprentices or Students of the Society	0 10 6
Minor (Registered as Chemists and Druggists) 3	3 0	Eligible, on application to the Council, to be elected Associates of the Society	0 10 6
Major (Registered as Pharmaceutical Chemists) .. 5	5 0	Eligible, on application to the Council, to be elected Members of the Society	1 1 0
		Or a Life Member's Commutation Fee of Twenty Guineas.	
Chemists and Druggists in business before August 1, 1868, and registered as such, on being elected Members of the Society, pay an Entrance Fee of		£2 2 0	
And Subscription for the current year		1 1 0	
			£3 3 0

COUNCIL EXAMINATION PRIZES.

Pharmaceutical chemists who were associates of the Society at the time of passing the Major Examination will be entitled to compete for the following prizes at the end of the session, in the month of July, in which they passed the Major Examination.

First Prize.—Pereira Medal in silver, and a present of books value 5*l.*, or thereabouts, given by Mr. T. H. Hills.

Second Prize.—The Pharmaceutical Society's Medal in silver, and a present of books value 3*l.*, or thereabouts, given by Mr. T. H. Hills.

Third Prize.—The Pharmaceutical Society's Medal in bronze, and a present of books value 2*l.*, or thereabouts, given by Mr. T. H. Hills.

Subjects of Examination.—Materia Medica, Botany, and Chemistry.

PHARMACEUTICAL SOCIETY OF IRELAND.

ONLY one qualification—that of Pharmaceutical Chemist—is recognised by the Council. Women are admitted to examination under the same limitations as men. Licentiates of the Apothecaries' Hall, of Ireland, may be registered as Pharmaceutical Chemists without examination on payment of three guineas. The members' subscription is one guinea per annum, or a life composition of ten guineas.

The following are the regulations for candidates for the qualification of Pharmaceutical Chemist:—

PRELIMINARY EXAMINATION.

Latin.—To translate into English, and parse, one or more sentences from a Latin author:—Cæsar's "Commentaries," First Book; or Virgil's "Æneid," First Book.

English.—To write on a subject selected by the examiner, and to write from dictation.

Arithmetic.—The first four rules, simple proportion, and decimals. To describe the weights and measures of the Pharmacopœia, and of the metric system.

The Rudiments of Chemistry and Botany.—(See Roscoe's "Chemistry"—Science Primers, and Browne's "Botany"—Elementary Science Manuals.)

Candidates presenting themselves for this examination must not be under sixteen years of age.

The fee for this examination will be 2*l.* 2*s.*

In case of rejection, the fee to be retained, but a rejected candidate may present himself for examination after a lapse of six months without additional payment.

Preliminary examinations are held on the first Monday of January, April, July, and October.

PHARMACEUTICAL EXAMINATION.

Candidates presenting themselves for this examination must be twenty-one years of age, and have passed the Preliminary Examination at least one year previously.

Candidates must also have been practically engaged in compounding and dispensing for at least two years, under the instruction of a pharmaceutical chemist or apothecary, and must produce a certificate of having attended a practical course in chemistry in either Trinity College, Royal College of Surgeons, Carmichael College, and the Queen's Colleges of Belfast, Cork, and Galway, or Royal College of Science.

Examinations are held on the first Wednesday of January, April, July, and October.

Botany.—To recognise the principal indigenous plants used in medicine, to refer them to their natural orders, and to give the definitions and the distinctive characters of their several parts.

Materia Medica.—To recognise specimens of the drugs of the Pharmacopœia, to describe their characters and active principles, name the sources from which they are obtained, and the official preparations into which they enter; and to detect adulterations.

General and Pharmaceutical Chemistry.—The elementary laws of chemistry and physics, including chemical equations. To recognise the chemical substances of the Pharmacopœia, to describe the processes by

which they are obtained; qualitative analysis, including the tests of Pharmacopœia and volumetric analysis; and to submit to a practical examination in these subjects when required.

Practical Pharmacy.—To translate Latin prescriptions; to detect dangerous doses; to compound and dispense correctly.

To explain the processes of making the non-chemical preparations of Pharmacopœia, and to recognise them.

Candidates are to give notice to the Council, seven clear days before stated meetings for examination, of their desire to be examined; and to lodge a receipt of having paid the fee of five guineas into the Bank of Ireland to the credit of the Society.

In case of rejection, the fee will be retained, but a rejected candidate may present himself for re-examination after a lapse of six months.

FORM OF NOTICE.—"I, _____, desire to be examined for the licence to act as a Pharmaceutical Chemist."

Mr. H. J. Fennell, College of Physicians, Kildare Street, Dublin, will give any additional information required.

PHARMACEUTICAL SCHOOLS.

THE SCHOOL OF PHARMACY OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

PROFESSORS.

CHEMISTRY AND PHARMACY	Professor REDWOOD, F.C.S.
BOTANY AND MATERIA MEDICA	Professor BENTLEY, F.L.S.
PRACTICAL CHEMISTRY	Professor ATFIELD, F.C.S.

The thirty-ninth Session, 1880-81, will commence on October 1, and terminate on July 31, 1881.

At 8 P.M. on October 6 the School prizes will be distributed, and address to the students delivered by Dr. J. Langdon Down, M.D.

Application for admission to the school, for prospectuses, or for further information, may be made to the professors or their assistants in the Lecture Room or Laboratories, 17 Bloomsbury Square, London, W.C.

CHEMISTRY AND PHARMACY.

One Course	£ s. d.
An entire Session (two Courses)	3 3 0
Perpetual admission	5 5 0

To connect this course with that of practical chemistry, the demonstrator, Dr. Alfred Senier, will assist at the lectures, and at the practical lecture examinations.

BOTANY AND MATERIA MEDICA.

Botany and Materia Medica, one Course (five months)	£ s. d.
An entire Session (two Courses), including Systematic and Practical Botany	3 3 0
Systematic and Practical Botany, separately	1 1 0
Perpetual Admission to all the Courses	4 4 0

A student entering for the first course on Botany and Materia Medica also entitled to attend the lectures on Systematic and Practical Botany on payment of two guineas and a half at the time of entering this first course in October.

PRACTICAL CHEMISTRY.

Professor of Practical Chemistry	DR. JOHN ATFIELD, F.C.S.
Demonstrator	DR. ALFRED SENIER, F.C.S.
Assistant-Demonstrator	MR. W. E. DUNSTAN, F.C.S.

FEES.

Hours of Study	One Month	Two Months	Three Months	Five Months	Term
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
10.0 to 5.0 daily (Sat. 10.0 to 2.0)	4 4 0	7 7 0	10 10 0	15 15 0	26 5 0
10.0 to 5.0 on any 3 days weekly ..	2 17 6	4 17 6	6 16 6	10 10 0	17 17 6
10.0 to 5.0 on any 2 days weekly ..	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0
Any 3 hours daily	2 17 6	4 17 6	6 16 6	10 10 0	17 17 6
Any 2 hours daily	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0

NORTH BRITISH BRANCH OF THE PHARMACEUTICAL SOCIETY.

119A George Street, Edinburgh.

The following classes are open to pharmaceutical students:—*Chemistry.*—Dr. Stevenson Macadam, daily, at Surgeons' Hall. Nov. 1889 to April.

Practical and Analytical Chemistry.—Dr. Macadam's laboratory is open daily. Courses are also given at the New Medical School.

Materia Medica.—Dr. F. W. Moinet. The course extends from November to January and May to July.

Dr. Wm. Craig lectures at the New School of Medicine.

Botany.—Professor Dickson. May to July.

THE SOUTH LONDON SCHOOL OF PHARMACY.

325 Kennington Road, S.E.

Director—Dr. JOHN MUTER, M.A. Secretary—Mr. WM. BAXTER.

The session commences on September 16, and lasts till July 20, and the evening courses of lectures, etc., are delivered several times during the session.—Latin: A course of sixty lessons. Botany: A course of sixty lessons. During the summer months a lecture is delivered once a week, from the Mr. Bridger's herb farm. Materia Medica: A course of six lectures. Pharmacy: This course lasts three months, and includes—description of the processes used in pharmaceutical laboratories, and practical instruction in dispensing and elegant pharmacy. Theoretical Chemistry: A course of sixty lectures. Practical Chemistry: I. Junior course (three months):—This includes—1. The manufacture of the chemicals of the B.P., in which the processes are typical; 2. Qualitative analysis, and separation of bases and acids; 3. The practical taking of the gravities, temperatures, and the measurement of gases. II. Senior course (six months):—This extends to—1. Detection of poisons in organic substances. 2. Quantitative analysis of B.P. substances, gravimetric and volumetric; 3. Analysis of manures, water, minerals, etc.; 4. Microscopic chemical examination of food and drugs, for detecting adulterations; elementary organic analysis.

Examinations.—1. For the whole course of lectures (including admission to the course), 87. 8s. (This fee entitles laboratory students to attend from the beginning of the entry to the end of the entire session. For example, a student entering the school in September can continue to attend the lectures if he stays until the end of the session in July, and return as often as he wishes any number of sessions without extra expense, provided he also attends the laboratory.) 2. For the laboratory—Junior Course, three months, 67. 6s.; Senior Course, first month, 44. 4s.; each succeeding month, 11. 11s. Students who attend the lectures must also take laboratory tickets, and the course cannot be divided in any way.

The institution offers silver and bronze medals, for which all the students compete. Over 1,500 persons from this school have passed the Pharmaceutical Examinations. Instruction in Microscopy and General and Analytical Chemistry is given to medical officers of health and others.

STMINSTER COLLEGE OF CHEMISTRY AND PHARMACY.

62 Lambeth Road, London, S.E.

Proprietors—Messrs. WILLS & WOITON.

The session extends from September 1 till July 25.

Two classes of students are received, and 400 lectures are delivered on the following subjects:—Latin, Dispensing, Pharmacy, Botany, Materia Medica, Chemistry, Physics.

Examinations.—Preliminary course, one month, 21. 2s., or until qualified, 51. 5s., or course, one month, 31. 3s., three months, 71. 7s., inclusive fee until qualified, 101. 10s. (For this fee all books and apparatus are supplied free of cost.) Major course, one month, 31. 3s., until qualified, 71. 7s.; a donation of a month being charged at the same ratio. Fee to old students attending to arrangement. Accommodation is provided for resident students. Terms, 11. 1s. per week. Students work independently, and can enter at any time. Those who wish to pass the Apothecaries' examination before leaving the college are prepared free of cost. Examinations and certificates are awarded at examinations held in April, July, and December in each year.

Evening Classes are held for gentlemen engaged during the day: Major: day, Practical Chemistry, 7 till 9. Class 9 till 10. Minor and day: Tuesday, Wednesday, and Thursday, Practical Chemistry, 7 till 9. Lectures, 8.30 till 10. Preliminary: Friday, 7 till 9.

Fees for Evening Classes—Major, one month, 8s.; three months, 11. 1s.; 1 qualified, 51. 5s. Minor, one month, 6s.; three months, 15s.; six months, 21s.; for the entire course (twelve months), 11. 11s. 6d. Preliminary, one month, 4s.; three months, 10s. 6d.; until qualified, 31. 3s.

Postal System.—Fee for Preliminary Examination, 10s. 6d.; for Modified, or, or Major, 11. 1s. Courses of lectures on all the subjects of the examinations are sent through the post from the College, the student receiving his last lecture when he receives a new one.

The session 1880-81 commenced on September 1, with 150 students in attendance.

CENTRAL SCHOOL OF CHEMISTRY AND PHARMACY.

173 Marylebone Road, London, N.W.

Teacher of Chemistry and Physics: Mr. A. P. Luff, B.Sc., F.C.S., F.L.S. C.; Teacher of Pharmacy, Botany, Materia Medica, &c.: Mr. J. Woodland, F.C.S., F.L.S. The session extends from September 1 to July 31.

Students who desire it are provided with board and lodging at 11 Lisson Grove, Marylebone Road; terms, 11. 1s. a week.

Class in Practical Dispensing is held; fee, 10s. 6d. A well-fitted laboratory is attached to the school; apparatus and chemicals are provided free of charge.

Fees (payable in advance):—One month, 41. 4s.; two months, 71. 7s.; three months, 91. 9s.; the entire session, 151. 15s. Students wishing to attend the classes on Chemistry and Physics only, can do so by payment of 1s. per month.

Students wishing to enter their names, and for further particulars, are requested to apply to Messrs. Luff & Woodland, 173 Marylebone Road, W.

EDINBURGH SCHOOL OF PHARMACY AND CHEMISTRY.

Marshall Street, Nicolson Square, Edinburgh.

The classes in Chemistry qualify for graduation in Science and Medicine at the University of Edinburgh, and all other examining boards in Medicine in the United Kingdom. The Pharmaceutical courses are conducted

separately from the qualifying instruction. Besides the usual day classes, there are evening classes for gentlemen engaged in business during the day. A dispensary is attached to the School, in which the students are instructed in Practical Pharmacy and Dispensing.

LECTURERS:—Chemistry: Dr. Drinkwater; Materia Medica and Pharmacy: Dr. Urquhart; Botany: Mr. McAlpine, B.Sc.

The Practical classes are conducted by the lecturers on Pharmacy and Chemistry, respectively.

Fees for the session (3 months) Materia Medica, 21. 2s.; Chemistry, 21. 2s.; Pharmacy, 11. 1s.; Practical Chemistry, 21. 2s.; Botany, 11. 1s.; Composition fee for a second season, 51. 5s.

THE PATRISON SCHOLARSHIP.—The holder is entitled to free instruction in all the branches taught in the Pharmaceutical Section of the school. It is awarded by competitive examination twice yearly. Candidates are required to produce their apprenticeship indentures duly discharged, and must have passed the Preliminary Examination. Successful candidates, when their scholarship expires, must present themselves for the Minor Examination. The subjects of the scholarship examination are pharmacy, materia medica, and the elements of chemistry.

All information will be supplied by the secretary, Dr. Urquhart.

THE WEST CENTRAL SCHOOL OF CHEMISTRY AND PHARMACY.

19 Great Coram Street, Russell Square, W.C.

Principal—Mr. HENRY JUDD.

The Evening Classes for Pharmaceutical Students are the oldest established in the kingdom, having reached their thirteenth half-yearly session. They are held throughout the week, from 7.30 to 10 p.m., viz., Monday, Preliminary; Tuesday, Wednesday, Thursday, and Friday, Minor. A Preliminary Class is held at 3.30 on Wednesdays, conducted alternately by the Principal and C. P. Marriott, M.A.

Fees (payable in advance, or by instalments).—Preliminary, for the full term of three months, 21. 2s. (proportionally less between terms). Minor, inclusive until successful, 101. 10s.; one night weekly, for three months from entrance, 21. 2s.; two nights weekly, ditto, 31. 3s.; three nights weekly, ditto, 31. 13s. 6d.; Private Tuition for any Examination, per hour, 3s. 6d. Major—Students are only received for private tuition, and country students are supplied with lectures to be copied at a guinea a set.

TULLY'S POSTAL SYSTEM.

Mr. JOHN TULLY, of 52 Camden Road, Tunbridge Wells, "Hill's Prize-man," established his postal system in 1872. It is divided into three classes. No. 1 is for the Preliminary, including all the subjects of the syllabus. If the student fail on first presenting himself, he is instructed for the next examination free of charge, providing he passes it within six months. No. 2 is for the Minor Examination for students under 20 years of age. It is intended to give direction to the studies, and to prevent the formation of an inattentive habit of reading. It includes monthly examination papers to be answered, and lectures which cover all the ground for the Minor and Major. Students must be between 16 and 20 years of age; they can commence at any time, but must continue for not less than six months. The fee is a guinea a year, payable half-yearly in advance. No. 3 is for the Minor for students over 20, and includes a full series of lectures. Fee, one guinea, payable in advance. A special course is organised for the Modified and Apothecaries' Hall Examinations.

THE PHARMACEUTICAL CURRICULUM IN GERMANY.

THE DEGREE OF PH.D.

In Germany a distinction is made between the designation chemist and apothecary. The latter must be a chemist, whereas the former need know nothing of pharmacy.

The school teaching for both chemist and apothecary is the same. A sound classical education is required, which must be acquired either at a gymnasium or a realschule, both of the first order, and the pupil upon leaving must have reached the highest class, and be able to pass the Abiturienten-Exam. This examination passed, there is a divergence in the curriculum of the aspirant of chemistry and the aspirant of pharmacy, the former going direct to the university, the latter being required to go first as apprentice to an apothecary for three years. At the end of that period he is examined by a medical board in regard to his attainments in pharmacy and natural science generally, as well as in dexterity of manipulation. This examination satisfactorily passed, the candidate is dubbed assistant, and has to serve as such for three years, during which period, besides shop duty, he must occupy himself with studying the theory and practice of his profession. The period of assistantship being completed, the candidate proceeds for one and a half or two years to a university, where he has to attend lectures upon pharmaceutical chemistry, pharmacognosy, botany (including botanical excursions), mineralogy, and physics, as well as practical analytical work in a chemical laboratory. When the student has matriculated at a university it depends upon himself how long he needs to remain there in order to qualify himself to pass the final

examination (Staats-Examen), but one and a half or two years is at least necessary. This examination is conducted by the Supreme Medical Board, and on passing it the apotheker, as he then becomes, may, according to his means, buy or superintend a business. The number of apothecaries' shops, as is well known, is regulated by Government.

The chemist, as we said, goes direct to some university, and if he wish to obtain the degree of Ph.D., which he must have before he can take a professorship or enter Government service, he must study there for at least three years, after which, in order to be promoted to the rank of Doctor of Philosophy, he must do some original work in the laboratory, which generally takes about a year, and having submitted a description of it together with a Latin curriculum vitæ and theses to the Dean of his Faculty for approval, if his dissertation is found good enough he obtains permission to go in for the Ph.D. Examination.

The German universities are made up of four faculties, viz., theology, medicine, law, and philosophy, and any subject belonging to natural science, except medicine, is brought into the philosophical faculty.

The chemical candidate going in for the Ph.D. has to take chemistry and history of philosophy as compulsory subjects, and then a third subject, which the candidate can choose from any branch of natural science he pleases. A chemist does well to choose physics, and as a rule does so. Having passed this examination, a day is appointed for him to appear in the Aula of the University to defend his theses before Dean and Faculty and the public, at the conclusion of which performance he is solemnly dubbed by the Dean, Doctor of Philosophy. The fee paid into the university exchequer for the Ph.D. diploma is 150 reichsmark, about 7*l.* 10*s.* sterling. No Doctor Degrees are now granted in Germany in absentia.

These curricula apply only to born Germans. A foreigner desiring to obtain the privileges pertaining to examinations and degrees of the kind above described must have passed the German Abiturienten-Examen. The Ph.D. offers, therefore, no special advantages to an English student if he has not passed the Abiturienten-Examen of a German gymnasium or real schule, since he cannot by virtue of it get a professorship or enter into Government service in Germany. A foreign student, desirous of entering a German university (unmatriculating) has only to give up his passport and pay the necessary fees, but if he wishes to obtain the Ph.D. degree he must in all the North-German universities give proof of his having passed in his own country an examination similar to the German Abiturienten-Examen; the South German universities are a little laxer in this respect, and do not at present require this, exacting instead of this a sort of rigorosum at least in Latin.

All students can change about from one university to another as they please.

MEDICAL EDUCATION.

VERY often the pharmaceutical student, disgusted with the mill-horse round of the chemist and druggist's business, turns longing eyes to the profession of medicine. A pharmacist pondering the future of his sons nearly always turns his thoughts in the same direction. No one without intellectual tastes, or a fondness for study and science, is likely to gain even bare admission to the profession. Competition is as severe here as elsewhere. Few practitioners make money so fast as they could by devoting the same energy to trade. Still, what Daniel Webster said of the legal, is true of the medical profession, "There is always room at the top." Vigorous health, untiring energy, and fair abilities, are perhaps indispensable to a candidate for a top place, and a reserve of money capital is a great advantage. Professor Huxley says, "The power of working 15 or 16 hours at a stretch without knocking up may make all the difference between success and failure." He puts a broad deep chest, and a stomach whose existence is almost unknown, among the first qualifications of a student.

No one can legally practise medicine in this country until certain conditions have been complied with. Four years must have been spent in a certain course of study, and a certificate of qualification must be obtained from one of a

number of authorities. After this qualification has been registered by the General Medical Council, the practitioner has full legal rights; he can practise when and where he chooses, and can recover fees in a court of law.

It should be noticed that the practise of the art of healing by unqualified men is not forbidden, but such men can claim remuneration only for goods delivered, and not for advice and they are specially liable to actions for malpraxis.

The expenditure necessary to prepare and establish youth as a medical practitioner consists of three principal items: preliminary education or examination, medical training, and purchase of a practice, or maintenance while a practice is being built up.

PRELIMINARY EDUCATION.

As no one under age is allowed to practise medicine, as after four years' study are demanded before the diploma will be granted, medical training generally begins at the age of 14. It is advisable that before leaving school the student should pass one of the examinations now to be mentioned:—

Oxford, Cambridge, and Durham.—Local examinations: Senior including Latin and Mathematics, or Junior, including Latin and Mathematics, and one of the following optional subjects:—Greek, French, German, Natural Philosophy (including mechanics, hydrostatics, and pneumatics).

London (Matriculation Examination), Edinburgh, Aberdeen, Glasgow, and St. Andrews.—Honours or Senior certificates granted under local examinations (to include English Literature, Arithmetic, Algebra, Geometry, Latin, and one of the following optional subjects:—Greek, French, German, Natural Philosophy).

Queen's University (Ireland).—Local examinations for men and women. Certificates to include all the subjects previously mentioned.

Royal College of Preceptors.—First-class certificate.

A degree in Arts from any British, and nearly all colonial, University is, of course, a full substitute for the examinations. Oxford Responsions and Moderations, at Cambridge Previous Examination, and their equivalents at other Universities, are accepted.

If none of these has been undertaken, the student must enter for one of the entrance examinations held by the medical licensing bodies.

Durham University.—Registration examination for medical students. Subjects—Rudiments of Religion, Literature, and Science.

Aberdeen, Edinburgh, Glasgow, and St. Andrew's Universities.—Preliminary examination for graduation in medicine and surgery. Subjects—English, Latin, Arithmetic, Elementary Mathematics, and Mechanics, and two, at least, of the following:—Greek, French, German, Higher Mathematics, Natural Philosophy, Natural History, Logic, Moral Philosophy. For further information apply to the Secretaries of the Universities.

Royal College of Surgeons of England, Lincoln's Inn Fields, London.—The examination is conducted by the Royal College of Preceptors. Subjects:—Dictation, Grammar, Composition, Arithmetic, Decimals, Fractions, Geography of Europe, English History, Euclid, books I. and II., Algebra to Simple Equations, Caesar's "De Bello Gallico," a one or not more than four of the following:—Xenophon's "Anabasis," book I., Saintine's "Picciola," Schiller's "Wilhelm Tell," Elements of Mechanics, Chemistry, Botany, and Zoology. Held in March and September. Candidates must apply for the prescribed form of application at least a month, and must send it in at least three weeks, before the examination. Fee, 2*l.* This is one of the most popular entrance examinations. More than 600 candidates entered for that held this month.

Society of Apothecaries, Blackfriars, London, E.C.—Held on the last Friday and Saturday in January and April, and the third in September. A form of application must be obtained and signed. For 1 guinea, to be paid at least a week before the examination. For further information apply to the Bearer.

Royal College of Physicians and Royal College of Surgeons, Edinburgh.—English Grammar and Composition, Arithmetic, Decimals, Algebra to Simple Equations, Euclid, books I. and II., Latin, and one of the following:—Greek, French, German, Natural Philosophy. Fee, 10*s.*, to be paid not less than two days before the examination. For dates of examination, &c., apply to the officers of the Colleges.

Faculty of Physicians and Surgeons of Glasgow.—Preliminary examination, much like the above. Held in April, July, September, and October. For further information, apply to the Clerk.

Apothecaries' Hall of Ireland.—English Grammar, Composition, and History, Arithmetic, Algebra to Simple Equations, Euclid, books I. and II., Latin, Livy, or Virgil's "Æneid," first two books, Greek Xenophon's "Anabasis" or Homer's "Iliad," book I., French or German, and either of the following:—Natural Philosophy and Natural History. Held on the third Thursday in January, April, July, and October. Apply to the Secretary.

Royal College of Surgeons of Ireland.—Apply to the Registrar.

The next essential step is the

REGISTRATION

Of the young doctor as a medical student. Details must be sent to the Registrar of the General Medical Council, Oxford

et, and the period of four years which must be devoted study can only begin fifteen days before the date of re-
stration. The secretary or officer of the medical school to
ich the student goes will undertake this, so that prac-
lly neither student nor parent need trouble further
n to make sure that it is done in good time.

he choice of a medical school is the next step, which
t depend on the student's intentions. To obtain a
iversity degree he must, except in the case of the Uni-
sity of London, fulfil certain conditions as to a residence
college and attendance at lectures, involving a consider-
e expenditure of time and money. The University degree
itles him to be called Doctor, and places him in a good
al position. The degrees of the English Universities are
t esteemed and hardest to obtain.

f the student wishes to become a consulting physician or
geon, and to take a high position in his profession, he can
dly dispense with the advantages of a metropolitan
cation. But the course at any school will be sufficient
enable an ordinary student to obtain certificates of quali-
fication which will enable him to become an ordinary prac-
tioner, and will fit him for most public appointments. For
latter he must have a "double qualification," that is, a
nce to practise both medicine and surgery.

UNIVERSITY DEGREES.

These are granted by all British Universities. The de-
es of Bachelor and Doctor of Medicine granted by the
ndon University are very highly esteemed, and this uni-
sity offers the unique advantage that it matters not
ere the student has gained his knowledge if he is able to
s the examinations.

he degrees granted by the Universities of Oxford and
nbridge are not often taken. Those of the Scotch and
h Universities are rather less esteemed than the English.
e following are the principal regulations:—

University of London.—Bachelor and Doctor of Medicine and
elor and Master of Surgery. The fee for each examination is 5*l*.
Preliminary Scientific (M.B.) Examination is best passed before
mencing regular medical studies. The candidate must be 17, and
t have matriculated. (2) First M.B. Examination. Candidates
t be 19, must have passed the Preliminary Scientific at least a
reviously, have been a student at a medical school at least
ears, and passed through a certain course of study. (3) Second
Examination. Two academical years must elapse between the first
second examinations, and a further and more special course of
y must have been undertaken. (4) Doctor of Medicine. At least
years must have been given the practical study of medicine after the
nd M.B. was passed. The subjects of examination are Logic, phi-
ology, and Medicine. (5) Bachelor of Surgery. Candidates must
e passed the second M.B., and attended a course of instruction in
ative Surgery. Master in Surgery candidates must have devoted at
t two years to the practical study of surgery since obtaining the degree
S. Full information will be found in the University Calendar.

The University of Oxford grants the degrees of M.B. and M.D.
medical student must acquire the degree of B.A., and afterwards spend
years in study prior to the first or scientific examination for the degree
achelor of Medicine, and two years more prior to the final or practical
mination for the same degree. Evidence must be brought to show that
as studied the practical parts of his profession in a first-class hospital.
sertation must be publicly read three years after the M.B., for the
ce of M.D. The student can keep terms by residence in a college, when
xpenses, everything included, will be from 15*l*. to 20*l*. a year; or, he
be an unattached student pursuing his studies where and spending
t he likes. Copies of the examination papers can be obtained through
booksellers, and full information may be obtained from the University
ndar.

The University of Cambridge, besides M.B. and M.D., grants
degree of M.C. (Master in Surgery). Students must keep terms for at
t three years; the expense is about 15*l*. a year for collegiate, and 8*l*.
0*l*. a year for non-collegiate students. Information regarding the latter
be obtained from the Rev. R. B. Somerset, Oxford House, Cambridge.
M.B. five years of medical study, including three years of hospital
ctice (fee, 10*l*. 10*s*. for one year; 15*l*. 15*s*. perpetual), are required,
pt in the case of medical students who have graduated with honours as
heloers of Arts, four years being then sufficient. There are three
minations, partly in writing and partly oral, and held twice annually in
hospital.
he degree of M.D. may be taken three years after M.B. The regulations
similar to those at Oxford.
or the degree of M.C., the candidate must have passed the three ex-
aminations for M.B., and have attended lectures on Human Anatomy (a
nd course), on the Principles and Practice of Surgery, Clinical Surgery,
wifery (with ten cases); also a second season of Dissections, three
s' surgical practice at a recognised hospital, and a house-surgeon's
ership for six months. He is then required to pass an examination in
ical Anatomy, Pathology, the Principles and Practice of Surgery, and
ical Surgery.

The University of Durham, Newcastle-on-Tyne, confers licences in
icine and surgery, and the degrees of Bachelor of Medicine, Master in
gery, and Doctor of Medicine. Candidates for the licences must have

studied medicine at least one year at the University, and three years more at
the University or elsewhere. There are two examinations, one at the end
of the second year's session, the other at the close of the fourth year. The
last examination is directed especially to medicine or surgery, according to
the licence desired, or both may be undergone at the same time. The
regulations for the degree of Bachelor of Medicine and Master of Surgery
are the same as those for the licences, but the candidate must have
taken the degree of B.A., and the examinations are more stringent. For
the degree of Doctor of Medicine, in addition to the B.M., the candidate
must write an essay, and pass two years in the practice of medicine and
surgery. A special examination is held in State Medicine, fee five guineas.

The Universities of Edinburgh, Glasgow, St. Andrews, and Aberdeen confer the degrees of M.B., C.M., and M.D. The first
must be obtained before either of the others are granted. For the M.B.
and C.M. degrees a course of four years, and 1,150 lectures, at least,
of medical and surgical study is required. For the M.D. degree two years
more must be given to medical and surgical practice, the candidate must
be a graduate in Arts, and must submit a thesis composed by himself on
any branch of knowledge comprised in the professional examinations for
the M.B. degree.

At least a year must be spent at the University School of Medicine,
and another at some University which grants degrees in medicine, before
any degree can be obtained. The fees for the lectures at Aberdeen are
3*l*. 3*s*. for a course of 100, and 6*l*. for hospital practice (perpetual). The
total minimum fees for the classes required for M.B. and C.M., Edinburgh,
are 105*l*. 16*s*. Total fees for M.B. degree, 15 guineas. Further information
can be obtained from the Secretaries to the Medical Faculties.

The University of Dublin (Trinity College) grants the degrees
of M.B., M.D., B.Ch., and M.Ch., and also licences in medicine (L.M.)
and surgery (L.S.). To take the degree of M.B., it is required that the
candidate shall also take that of B.A., and shall have attended hospital
and lectures for four years. The M.D. degree is granted to an M.B. of three
years' standing, who must perform exercises before the Regius Professor of
Physic. The curriculum for the degree of M.Ch. is slightly different. A
licentiate in medicine or surgery must pass the medical course and
examinations required for M.B. or M.Ch. respectively. He can, however,
afterwards take up his degree.

The fees for the degrees of Bachelor of Medicine or Surgery are 16*l*.;
for Doctor of Medicine, 13*l*.; for Master in Surgery, 11*l*.; for the
licences, 10*l*.

The Queen's University of Ireland comprises the Queen's Colleges
of Belfast, Cork, and Galway. The degrees of Doctor of Medicine and
Master in Surgery are granted at each of these colleges, and the regulations
are very similar in each case. Candidates must have matriculated at some
University; they must attend lectures during at least two sessions in one
of the Queen's Colleges; these lectures, besides the usual medical studies,
must have included a modern language and natural philosophy. The course
of study extends over four years. Information can be obtained from the
Secretaries of the Faculties of Medicine.

LICENCES TO PRACTISE.

Besides the Universities nine other corporations have power
to grant candidates certificates which authorise them to
practise the art of healing. These certificates are granted
only after the candidate's knowledge has been tested by
examination and certain other regulations have been com-
plied with. The General Medical Council recommends the
following conditions:—The age of 21 shall be the earliest
age at which a candidate shall obtain a licence to practise,
and that the age shall, in all instances, be duly certified.
No licence shall be obtained at an earlier period than after
the expiration of 45 months subsequent to the registration
of the candidate as a medical student. The course of pro-
fessional study required for a licence shall occupy at least
four years, of which at least three winter and two summer
sessions shall be passed at a recognised school. The follow-
ing are the subjects without a knowledge of which no can-
didate should be allowed to obtain a qualification entitling
him to be registered: 1. Chemistry, including a knowledge
of the principles of chemistry, and of those details of the
science which bear on the study of medicine, and chemical
physics, meaning thereby heat, light, and electricity; 2.
Anatomy; 3. Physiology; 4. Materia Medica and Pharmacy;
5. Pathology, including morbid anatomy; 6. Medicine, in-
cluding medical anatomy, clinical medicine, and thera-
peutics; 7. Surgery, including surgical anatomy and clinical
surgery; 8. Midwifery; 9. Forensic Medicine. It may be
taken for granted that the examinations of all the licensing
bodies and the lectures at all the medical schools deal with
all these subjects.

We give a short summary of the qualifications demanded
by the licensing bodies. Full information can be obtained
from the secretaries.

The Royal College of Physicians, London.—There are Licen-
tiates, Members, and Fellows of the Royal College of Physicians, London.
The licentiates have passed a Preliminary Examination in Arts, and two
other professional examinations, besides showing that they have had at
least four years of professional education as registered medical students.
The fee is 15 guineas. The course of study previous to the examination
for membership is almost similar to that prescribed for the licentiates.
Candidates holding the degree of M.B. are also admitted, after a certain
examination. The fee is 30 guineas. The members of the College are
eligible for Fellowship.

The Royal College of Surgeons of England.—To become a member the following course is prescribed. Preliminary Examination:—Students can pass this at the College. Fee, 2*l*. Certain certificates, as, for instance, that of the Middle Class Examinations (Senior), are accepted in lieu of this examination, provided such include Latin and mathematics. The professional education must comprise four years of study subsequent to the Preliminary Examination, and include certain attendances at lectures and hospital practice. The fee is 22*l*. For Fellowship the curriculum is longer, the examinations more severe, and the fees higher. Or a member of eight years' standing may offer himself for the final examination for the Fellowship. The Royal College of Surgeons also grants certificates of qualification in midwifery and in dental surgery.

The Royal College of Physicians, Edinburgh, grants licences in medicine. The fee here is 10 guineas. The curriculum is very similar to that which has been described. Any licentiate of a College of Physicians, or graduate of a British or Irish University, with whose knowledge of medical and general science the College may be satisfied, may be admitted a member of the College, provided he shall have attained the age of twenty-four years. The fee to be paid by a member is 31*l*. 10*s*. When a licentiate is raised to the rank of member he pays 21*l*. When a member is raised to the rank of fellow the fee is 31*l*. 10*s*, exclusive of stamp-duty, which amounts to 25*l*.

The Royal College of Surgeons, Edinburgh, also grants diplomas of membership. The fee here for the professional examination amounts to 15 guineas.

The Royal College of Physicians of Edinburgh and the Royal College of Surgeons of Edinburgh, while they still continue to give their diplomas separately, under separate regulations, have made arrangements by which, after one series of examinations, the student may obtain the diplomas of both colleges. The general principle of this joint examination is that it shall be conducted by a board in which each body is represented in those branches which are common to both medicine and surgery; but that the College of Physicians shall take exclusive charge of the examination in medicine, and the College of Surgeons of the examination in surgery. The object of the joint examination is to give to students facilities for obtaining from two separate bodies, and at less expense, a qualification in medicine and a qualification in surgery. Students passing that examination successfully will be enabled to register two qualifications under the Medical Act—Licentiate of the Royal College of Physicians of Edinburgh and Licentiate of the Royal College of Surgeons of Edinburgh.

The Faculty of Physicians and Surgeons of Glasgow also grant a diploma. The candidates follow a curriculum similar to that of the Edinburgh College of Surgeons. The fee for the Preliminary Examination is 10*s*, and for the Professional Examinations 10*l*. In connection with the Royal College of Physicians of Edinburgh a double diploma is also granted. The fee for this, as for the similar double diploma in Edinburgh (Professional Examinations only), is 20 guineas.

The King and Queen's College of Physicians in Ireland grants a licence in medicine, and also a licence in midwifery. A four-years' course of medical study is required, and a special additional examination for the midwifery qualification. The fee for the licence in medicine is 15 guineas; for the midwifery diploma, 3 guineas.

The Royal College of Surgeons in Ireland grants *Letters Testimonial* and Fellowship. For the former a Preliminary Examination and the usual medical course is required, the total of the fees being 26*l*. 15*s*. For Fellowship the B.A. or an equivalent examination is demanded as preliminary, and a longer course of study. The total fees are 50 guineas if the candidate intends to practise within ten miles of Dublin, or 41 guineas otherwise.

The Society of Apothecaries, London, grants a certificate of qualification to practise as an Apothecary, and requires that the candidate shall produce testimonials of having passed a Preliminary Examination in Arts, as a test of general education. Of having attained the full age of twenty-one years. Of good moral conduct. And of having pursued a course of medical study in conformity with the regulations of the Court. The course of study includes three winter sessions and two summer sessions. The extent of the examinations is modified towards gentlemen holding the diplomas of other examining bodies. The Society also grants a certificate of qualification to act as an assistant, the examination comprising the following subjects:—In translating physicians' prescriptions; in the British Pharmacopœia; in Pharmacy, Pharmaceutical Chemistry, and Materia Medica. Fees.—For a certificate of qualification to practise, 6 guineas, the half to be paid at the first examination; for an assistant's certificate, 2 guineas.

The Apothecaries' Hall of Ireland grants a licence to practise and certificates of qualification as assistant. Candidates for the licence must have passed four years in professional study. The fee for the licence is 10*s*.

MEDICAL SCHOOLS.

WE give beneath the names of the different Medical Schools, with the number of beds in the hospitals attached, and the fees for the whole course of four years. These can be paid in one sum in advance or in instalments differing at each hospital.

Further information concerning many of them will be found in our advertisement pages.

St. Bartholomew's Hospital, West Smithfield, E.C.—710 beds. Fees for perpetual attendance on lectures and hospital practice, 132 guineas, or 125 guineas in advance; for dental students, 63 guineas.

Charing Cross Hospital.—180 beds. Fees for matriculated students (students who enter for their whole course at the hospital), 91*l*. 7*s*. in five instalments; for dental students, 42*l*. 2*s*. Matriculated students enjoy special advantages.

St. George's Hospital, Hyde Park Corner, S.W.—351 beds. Fee for the whole course, 125*l*. in advance; for dental students, 55*l*.

Guy's Hospital, St. Thomas's Street, Borough, S.E.—695 beds. Fee, 125 guineas in advance; for dental course, 63 guineas.

King's College, Strand, W.C.—170 beds in hospital. Fee, 125*l*. in advance.

London Hospital, Mile End, E.—800 beds. Fees, 90 guineas in advance; dental course, 40 guineas.

St. Mary's Hospital, Cambridge Place, Paddington, W. 190 beds. Fee, 119 guineas in advance; for dental students, 62*l*. guineas.

Middlesex Hospital, Berners Street, W.—300 beds. Fee, 90*l*. for dental surgery, 42*l*.

St. Thomas's Hospital, Albert Embankment, Westminster Bridge.—572 beds. Fee, 125*l*.; for dental students, 55*l*.

University College Hospital, Gower Street, W.C.—Fee, 100 guineas.

Westminster Hospital.—215 beds. Fee, 92*l*. 10*s*.; for dental students, 45*l*.

London School of Medicine for Women, Henrietta Street Brunswick Square.—Established to provide complete medical education for women. Its classes are recognised by the University of London, the King and Queen's College of Physicians of Ireland. Fee for lectures, 80*l*.; for hospital practice, 20*l*. the first year, 15*l*. each succeeding year.

Queen's College, Birmingham. Faculty of Medicine. Composition fee, 102 guineas. Students are admitted to two hospitals with 400 beds.

Bristol Medical School: Affiliated to University College Bristol.—Composition fee, 60 guineas for the college, and 35 guineas for the Infirmary, or 2*l*. for the General Hospital course. The Bristol Royal Infirmary contains 264, and the General Hospital 154, beds.

Leeds School of Medicine.—Composition fee, for lectures, 45 guineas; for medical and surgical practice at the Leeds General Infirmary (300 beds) for three years each, 20 guineas; perpetual, 25 guineas; to fees, 89*l*. 5*s*.

Liverpool Royal Infirmary School of Medicine.—300 beds. The perpetual hospital fee is 32 guineas; the composition fee for lectures is 50 guineas.

Owens College, Manchester.—College composition fee, 60 guineas; hospital fee (Manchester Royal Infirmary), 40 guineas; 500 beds.

Sheffield School of Medicine.—Perpetual fee for lectures, 4 Hospital practice may be attended either at the General Infirmary (180 beds), or the Public Hospital and Dispensary (110 beds). Perpetual fee in each case, 35 guineas.

Dr. Steeven's Hospital and Medical College, Dublin.—7 hospital contains 250 beds. Composition fee for the medical school, 56*l*. 3*s*. 6*d*.; fee for hospital, 12 guineas for nine months.

Catholic University of Ireland. School of Medicine, Cecil Street, Dame Street, Dublin.—Perpetual fee for lectures, 56*l*. 17*s*.

Carmichael College of Medicine and Surgery, Aung Street, Dublin.—This is connected with the following hospitals:—Adelaide, City of Dublin, Cork Street (Fever), House of Industry, Mea and Mercer's. Fee for the full course of lectures for the Royal College of Surgeons, Ireland, 58*l*. 5*s*. 6*d*.

New Carmichael College of Medicine and Surgery, Aung Street, Dublin.—For particulars apply to the Registrar, Dr. Harvey Upper Merrion Street, Dublin.

Queen's College, Belfast. Faculty of Medicine.—Fees according to the classes attended—generally 2*l*. a class. Hospital practice must be obtained outside the college. Two scholarships of 24*l*. are awarded first year's medical students.

Queen's College, Galway. Faculty of Medicine.—Minimum fee for the degree of M.D., 39*l*. 3*s*. Hospital practice must be obtained elsewhere.

Anderson's College, Glasgow.—Fee for all lectures and hospital practice (at the Glasgow Royal Infirmary, 570 beds), 48*l*.; dental fee, 10 guineas.

School of Medicine, Edinburgh.—Fee for study required for double qualification, 95*l*. including fee for examination.

ARMY MEDICAL DEPARTMENT.

EVERY candidate for a commission in the Army Medical Department must be 21 years of age, and not over 28 years at the date of commencement of the competitive examination, and must produce certificates of good character.

He must be of unmixed European blood, and labour under no mental or constitutional disease.

His physical fitness will be determined by a board of medical officers, who are required to certify that the candidate's vision is sufficiently good to enable him to perform a surgical operation without the aid of glasses.

Certificates of age, registration of diplomas, including qualifications in medicine and surgery, &c., and of character must accompany the declaration when signed and returned.

Candidates will be examined by the examining board on the following compulsory subjects:—Anatomy and physiology; surgery; medicine, including therapeutics, the diseases of women and children; chemistry and pharmacology and a practical knowledge of drugs.

Examinations will also be held in French and German and natural sciences.

The knowledge of modern languages is considered of great importance. The natural sciences will include comparative anatomy, zoology, natural philosophy, physical geography, and botany, with special reference to materia medica. These are voluntary subjects.

After passing this examination every qualified candidate will be required to attend one course of practical instruction at the Army Medical School as a probationer on hygiene, medical and military medicine, clinical and military surgery, and pathology of diseases and injuries incident to military service.

Pay commences on probation at 8s. a day, and increases to 15s. a day after 10 years' service, and to 21. 15s. a day for Surgeon-generals after 25 years' service.

INDIAN MEDICAL SERVICE.

Candidates must possess a diploma or license to practise both medicine and surgery, and must labour under no bodily defect. He will be examined in professional subjects, and immediately on passing will be gazetted for duty.

NAVAL MEDICAL SERVICE

Under the control of the Admiralty, 9 New Street, Spring Gardens, S.W. The regulations are similar to those of the Army.

VETERINARY EDUCATION.

NO ONE may assume the title of Veterinary Surgeon. But the Royal College of Veterinary Surgeons grants the titles of Member and Fellow of the College. Candidates for membership must have gone through a three-years course at one of the Veterinary colleges mentioned below, and pass three examinations (fee in each case three guineas). If the candidate is successful, he is registered as a M.R.C.V.S., registration fee one guinea. The candidate for Fellowship must produce a certificate signed by three Fellows as to his status in the profession, and of his having been in practice not less than five years; and must undergo an oral and written examination: fee on election, 15 guineas.

The following are the Veterinary Schools:—

ROYAL VETERINARY COLLEGE, *Camden Town, London.*

VETERINARY COLLEGE, *Clyde Street, Edinburgh.*

NEW VETERINARY COLLEGE, *Gayfield, Edinburgh.*

Fee for the whole course, 36 guineas, payable in advance. A winter course of Natural History is now provided.

VETERINARY COLLEGE, *Buccleugh Street, Glasgow.*

Candidates for appointments under the Army Veterinary Department must possess the diploma of the Royal College of Veterinary Surgeons, and shall undergo a further examination. Successful candidates receive a commission for 10 years; pay commencing at 250*l.* a year. At the expiration of the 10 years he may be dismissed, or may be selected for further appointments. After serving 12 years he is eligible for promotion to the rank of Veterinary Surgeon of the 1st class, pay commencing at 16*s.* a day, rising to 22*s.* a day after 5 years' service as 1st Class Veterinary Surgeon. Army Veterinary Surgeons rank as Lieutenants, 1st Class Surgeons as Captains.

THE DENTAL PROFESSION.

THE Dentists Act makes it compulsory for all would-be dentists to pass some approved examination unless they were in practice at the time the Act passed.

A young man intending to be a dentist must, at the outset of his career, pass a "preliminary examination," such as is required from fledgling doctors. That of the London University is in this, as in all other cases, the most difficult and the best.

The following are the conditions which must be observed to obtain the dental diploma of the Royal College of Surgeons. Candidates must be 21 years of age; must have spent the usual four years in the acquirement of professional knowledge, and must have attended at least one course each of lectures on Anatomy, Physiology, Surgery, Medicine, Chemistry, and Materia Medica; must have attended a special course on Anatomy of Head and Neck; must have

performed Dissections for at least nine months; must have completed a course of Chemical Manipulation; must have attended Surgical Lectures two winter sessions, and must have attended two courses on Dental Anatomy and Physiology (human and comparative), Dental Surgery, Dental Mechanics, and one course on Metallurgy; must have been engaged for three years in acquiring practical familiarity with Mechanical Dentistry; and must have attended for two years at a dental hospital or the dental department of a general hospital. All the lectures and studies must be at schools recognised by the College.

The examination is written, oral, and practical. The written examination comprises General Anatomy and Physiology, and General Pathology and Surgery, with special reference to the practice of the Dental Profession. The oral and practical examinations comprise the several subjects included in the curriculum of professional education, and are conducted by the use of preparations, casts, drawings, &c. Those who are already members of the College (and who are, therefore, fully qualified surgeons) will only be examined in matters specially pertaining to dentistry. A candidate whose qualifications are found to be insufficient will be referred back to his studies, and, except under special circumstances, will not be eligible for re-examination for six months. Examinations are held in January, June, and October. The fee for the diploma is ten guineas over and above any stamp duty. A ticket of admission to the Museum, Library, and College Lectures will be presented to each candidate on his obtaining the diploma. The latter document gives him the title of L.D.S. (Licentiate in Dental Surgery), and entitles him to registration.

Dental diplomas are also granted after examination by the Royal College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the Royal College of Surgeons of Ireland. The curriculum required is almost identical in each case, and is directly copied from that organised by the London College. The fee is ten guineas in each case. Courses of instruction for these examinations are provided at most of the medical schools. The fees are much lower than those for the full medical course, and have been given under the name of each school. The following schools are specially devoted to Dental Education.

Dental Hospital and School of Medicine, Leicester Square.—Total fee, 30 guineas. Dresserships and other appointments open free to all pupils who have entered for the entire course. Only specially dental matters are taught here. The student must obtain elsewhere the necessary instruction in general surgery, &c.

National Dental Hospital and College, 149 Great Portland Street.—Total fee, 25*l.* 4*s.* Dresserships open.

Edinburgh Dental Hospital and School, Dental Hospital, Glasgow.—Fee for practice, 10 guineas. Dental education is also obtainable at most of the principal schools of medicine.

Dental Dispensary and School, Octagon, Plymouth.—The lectures on dental subjects are recognised by the Royal College of Surgeons. Fee, 22 guineas.

Anderson's College, Glasgow.—A dental school has been opened during the year.

SCIENTIFIC EDUCATION.

CITY OF LONDON COLLEGE.

Leadenhall Street.

EVENING classes are held here in most of the sciences and modern languages, in short-hand, music, drawing, book-keeping, writing, &c. There is a library, and a coffee-room is open to members and subscribers. The prospectus will be forwarded on application to the secretary.

THE YORKSHIRE COLLEGE, LEEDS.

THIS institution is intended to promote scientific education among the manufacturing classes. There is a special department for instruction in matters concerning the Textile Industries, which is endowed by the London Clothworkers' Company. Besides these, instruction is given in Mathematics, Experimental Physics, Chemistry—Theoretical and Practical, Geology and Mining, Biology, European and Oriental languages, Civil and Mechanical Engineering, Classical and Modern History, and Literature. Various scholarships are offered, and the College holds endowments for providing courses of lectures in other towns. The Clothworkers' Company, London, have endowed a Dyeing Department. The title of Associate in Physical Science is conferred on students who attend classes in not less than three of the following departments for two entire sessions each, and who pass a special examination in each class at the end of their curriculum. The departments are: Mathematics, Physics, Chemistry, Geology, Biology, and Civil and Mechanical Engineering. Entrance fee to the college, 1*l.* 1*s.*; use of library, 2*s.* 6*d.* per session. Each class has separate fees. The College Calendar (6*d.*) contains full information as to classes, fees, &c. The fees for the laboratory course of chemistry are 17 guineas a session. For the lectures on dyeing, 3*l.* 3*s.*; for the practical work, 21*l.* for six days a week.

BIRKBECK INSTITUTE.

Southampton Buildings, Chancery Lane.

THE classes in botany (fees 7s. 6d. a term) are held on Friday evenings, those on chemistry on Tuesdays and Saturdays. The fee for chemistry, inorganic or organic, is 6s. a term, practical work 1l. Members of the Institute pay considerably less. The laboratory is large and well fitted.

ROYAL SCHOOL OF MINES.

THIS was founded to teach the principles of the sciences on which the operations of the miner and metallurgist depend. The public are admitted to the lectures on payment of 4l. for a course of 40 or more, and 3l. for a course of 30 or more. The payment of 20l. in one sum, or two annual payments of 10l., entitles the student to attend all the lectures required for the Associateship, which is granted on passing an examination at the end of the third year. Associates have perpetual access to the library and lectures. The course of study for the first two years is the same for all students. In the third year they devote their attention specially to one subject—mining, metallurgy, or geology. Lectures are given on chemistry, mineral and organic; physics; biology; mineralogy; geology; mining; metallurgy; applied mechanics, and mechanical drawing. A prospectus, including syllabus of the lectures and examination papers, can be obtained from Eyre & Spottiswoode, price 6d., postage 1d.

SCIENCE AND ART DEPARTMENT, SOUTH KENSINGTON.

BY means of grants to teachers, and by conducting examinations, this department assists in the formation of classes for teaching elementary science throughout the country. Any person passing the advanced or honours' stage of the examination in any subject, and applying to the Department, is recognised as a qualified teacher of that subject, and if he comply with further regulations he will be entitled to receive money grants on all pupils who pass the examination under his care. Examinations are held by the Department in any place where there is a class; in large centres, where there are many classes, a local secretary is appointed, who presides at all the examinations. The calendar of the Department, published yearly at 6d., gives full syllabuses of the subjects.

THE VICTORIA UNIVERSITY.

OWENS COLLEGE CLASSES FOR 1880-81.

THE session at Owens College, Manchester, which commences on October 5, will be the first for "Owens" as a College of the new Victoria University.

The Victoria University is in some respects peculiar, but it was to meet a peculiar want that it was supplied. It differs from the University of London in being a *teaching* besides an *examining* body, and it differs from the Universities of Oxford and Cambridge in the fact that its colleges are to be situated in more than one town. At present "Owens" is the only College of the University, but "wherever a College is recognised as of adequate efficiency and stability" it will be made a "College of the University."

As the charter of the Victoria University is only dated April 20, 1880, we have yet to wait for at least some weeks before the statutes can be published; but it was resolved at the first meeting of the Court, held in July, that the matriculation examination of London University should be accepted, "until a scheme of studies and examinations shall have been adopted," as equivalent to whatever entrance or preliminary examination the University may appoint. Full regulations concerning the examinations for degrees will probably be published before next January, but "students who enter on a regular course of study in October will be allowed to count the University terms from that date."

In one respect the charter of the University may be said to be—at least temporarily—incomplete, for one section thereof, after giving power "to grant all such degrees and distinctions as can be granted by any other University in the United Kingdom," adds the proviso, "That the University shall not grant degrees in medicine and surgery unless and until authority in that behalf is given by our further charter or by Act of Parliament." This proviso was inserted on the ground that, while the whole question of medical examinations was under consideration, it was not desirable to add to the number of bodies entitled to grant

medical degrees. Owens College, however, is justly proud of its large and flourishing medical school.

The forthcoming session at Owens is divided into three terms—viz., Michaelmas, ending December 23; Lent, ending April 13; and Easter, ending June 24, 1881. Each student on first entering the College, is required to pay the admission fee of 1l. 1s., and the library fee, 5s. A general examination is held at the end of the session, on the result of which prizes are awarded. The grade of "Associate of the College" may be obtained by students who have passed with distinction through a three years' course of study.

The *Art Course* prepares for matriculation at London University and for the degrees of B.A. and M.A. there. It is suitable for those who intend becoming candidates for civil appointments and to all preparing for the learned professions. Fees:—First year, 17l.; second year, 18l.; third year, 14l.

The *Science Course* prepares for matriculation at London University and for the degrees of B.Sc. and D.Sc. there. This is suitable for those preparing for the higher departments of manufacturing art and for pursuits and professions strictly scientific. Fees:—First year, 17l. Second and third year fees vary according to classes taken.

The *Engineering Course* furnishes a thorough, scientific groundwork for the higher branches of the engineering profession. Fees:—First year, 15l.; second year, 12l.; third year, 12l.

Besides these three courses students can take single classes, for which special fees are charged.

The Chemistry course is under the direction of Professor Roscoe, Ph.D., F.C.S., &c. Instruction in *Systematic Chemistry* is given by means of experimental lectures. There is a *Junior Lecture Class* and a *Senior Lecture Class*. Students preparing for the Preliminary Scientific M.B. examination of London University attend the Junior and the first portion of the Senior Class. Text-books used are:—Roscoe's "Lessons in Elementary Chemistry," Fowne's "Manual of Chemistry," and Roscoe and Schorlemmer's "Treatise on Chemistry." Fee for the session for each class, 2l. 12s. 6d.

The *Organic Chemistry* class is conducted by Professor C. Schorlemmer, F.R.S. The course is divided into two parts: 1. *General Course*, from October to end of March. 2. *Extended Course*, from April to end of session. This course is suited to the requirements of students preparing for the B.Sc. Fees:—For the General Course, 2l. 12s. 6d.; for the Extended Course, 1l. 11s. 6d.; for both, 3l. 10s.

A class in *Chemical Philosophy* is held once a week by Professor Schorlemmer, F.R.S. The subjects are:—Sketch of the History of Chemistry; Development of Modern Chemistry; Chemical Law and Theories; Relation of Chemistry to Physics. Fee, 1l. 11s. 6d.

A class in *Technological Chemistry* is held once a week by Watson Smith, F.C.S. The subjects are:—The Alkali and Sulphuric Acid Manufacture; Bleaching Powder and Liquor; Destructive Distillation of Coal; Gas Manufacture; Distillation of Coal-tar; Ammonia and Ammonium Salts from Gas-liquor. Fee, 1l. 11s. 6d.

There are also *Laboratory Courses in Analytical and Practical Chemistry*. Fees for the session for six days a week 21l.; fees for the session for four days a week, 17l. 17s.; fee for the session for three days a week, 13l. 13s.

There is also a *Lecture Course in Analytical Chemistry* conducted by W. C. Williams, F.C.S. The course treats of the methods of Qualitative Analysis, and is intended to supplement the instruction in Practical Chemistry. Fee 1l. 11s. 6d.

The *Botany Course* is under the direction of Professor W. C. Williamson, F.R.S. It consists of two parts, the *Lecture Course* and the *Practical Course*. Fee for both courses 3l. 13s. 6d.; for the lecture course only, 2l. 12s. 6d.

The Medical Department opens on October 4. Students receive their clinical instruction in medicine and surgery at the Manchester Royal Infirmary.

Besides the day classes, during the winter months, short courses are given in the evenings, between the hours of 7 and 9, on nearly all the subjects in which there are day classes.

Full particulars respecting any of the classes may be obtained from the Registrar of Owens College, Oxford Street Manchester.

Exchange Column.

TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of THE CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to the "Publisher of THE CHEMIST AND DRUGGIST, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The Publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

Deposit of Money.—In order to ensure safety we offer the following system:—The purchaser of anything advertised in the Exchange Column may remit the amount to us. We shall acknowledge receipt to both parties by post-cards, and shall only pay it away on the advice of the remitter. Whether returned to him or paid to the seller, we shall charge a commission of 2½ per cent. on any money thus passing through our hands, and not less than 6d. on any single transaction. This arrangement should entirely prevent any cause of complaint or dissatisfaction arising out of this section of THE CHEMIST AND DRUGGIST.

FOR DISPOSAL.

Dental and Surgical.

What offers? 18-inch air-cushion, fig. 1, Maw's. 18d/19.

Three Pulvermacher's belts, prices 40s., 30s., 21s.; one spine band, 18s.; will sell cheap. What offers? Wilton, High Street, Runcorn.

Electro-magnetic machine, Maw's fig. 2, also 2 electrodes for throat and spine, cost 2l. 18s. 6d., only used twice, good as new. What offers? Eastman, Chemist, Tottenham.

Drugs and Chemicals.

42 oz. morphia, 9s. oz. Chemist, 20 Sussex Street, Pimlico.

Offers for Honduras sarsaparilla, nucut; 40 lbs. safflower; will send sample. 182/4.

What offers? 20 lbs. pot. iodid. H. T. Jeffery, Watford.

Dowman's butter powder, 6d., 2s. dozen; finest aloes harb., 1s. 6d. lb. H., 51 Long Street, Middleton, Lancashire.

Offers wanted for about 28 lbs. Natal arrowroot, satisfactory reasons for disposal. B. Wood, New Pellon, near Halifax.

6 lbs. potass. iodid. pur., in one lot or divided. What offers? ½ lb. ol. menth. pip. Mitch., old, 20s. Fastman, Chemist, Tottenham.

3 oz. iodine, 4 lbs. bromide potass., 3 lbs. ferri pot. tart., 1½ lb. chloral hydrate, 1 lb. bismuth. subnit., ½ lb. acid gallic, 1 lb. ferri ammon. cit. Woodcock, Magdalen Street, Norwich.

19 lbs. Barbados aloes opt., lump; 20 lbs. balsam copaiba opt.; 20 oz. sulph. cinchonidine, Howard's. William Day, Market Place, ssett.

Optical.

Herbert and Godfrey's spectacles; well assorted lot; invoiced 177.; marked to sell about 35l.; cash 10l., or offers. 183/16.

Educational.

Salts sent to students for analysis; reports corrected; difficulties carefully explained; special "sets" for Majors, 2s. per dozen. Pharmaceutical Chemist, 16 New Street, Lambeth Walk.

Fifty questions asked of a successful student at last Minor, 2s.; 30 prescriptions (catch and difficult) given to dispense at Minor during past session, 2s.; reagent labels for Minor students, showing formulæ, equations, and other useful knowledge, 1s. 6d.; lot of cheap books for students; send stamp for list. Saunders, Tutor, 79 Gaisford Street, N.W.

Literature.

Fresenius' "Qualitative Analysis," eighth edition; what offers? 181/34.

"Chemists' Register," exchange Wilson's "Anatomy," or cash. Gardner, Asylum, Yarmouth.

Bradley's "Eutropius," 9d.; Wilson's "Chemistry," 9d.; Beeton's "Gardening," 1s. 6d.; Anthony's "Virgil," 1s. 6d. G. Wilton, High Street, Runcorn.

Ramsbotham's "Midwifery," Guy's "Forensic Medicine" Griffin's "Chemical Handicraft," all clean and in good order; what offers? H., 22 Berkeley Street, Southsea.

To whom it may concern.—Volumes 1 to 16 inclusive, unsciled, capitally bound, *Pharmaceutical Journals*, 3s. each, 40s. lot; sundry volumes Braithwaite's "Retrospective Medicine," 2s. 6d. each; vols. 1, 3, and 11 Gmelin's "Chemistry" (now out of print), 1l.; 1870 and 1871 "Year-book of Pharmacy," half-price; Parnell's "Chemical Analysis Elements," 5s., post free; Gustav Bischof's "Chemical and Physical Geology," vols. 1 and 2, 12s. 6d.; Professor Lehmann's "Physiological Chemistry," with supplementary atlas, vols. 2 and 3; offers solicited. Mr. Roberts, 20 West Grainger Street, Newcastle-on-Tyne.

Apparatus.

Cocking's rotary pill machine, perfect, cheap. 180 24.

Pindar's rotary pill machine, nearly new, 5l., cost 15l. Page Woodcock, Calvert Street, Norwich.

Fèvre's 5-pint seltzogene, new, with dripper and mould, 15s., would exchange Treble's guinea curved show-case, in good condition. Clark, Chemist, Stourbridge.

Vulcaniser (Child's patent), with thermometer and spanner, nearly new, cost 3l. 17s. 6d., take 2l. 5s. B. & H. Waddington, Clayton, near Bradford.

Steam pans, large and small tincture press, copper ointment-pans, large iron mortar, stills, condensers, and other laboratory fittings. Apply, E. Hollier, Pharmaceutical Chemist, Dudley.

Apparatus for administering liquid nitrous oxide gas; gasometer (Coxeter & Son), zinc, japanned; wrought iron bottle, holds 50 gallons (space for two bottles); 6 feet mohair tubing, to connect gasometer with face-piece; two stop-cocks; one medium-size face-piece; good as new, price 4l. Trippier, 79 Islington, Liverpool.

Soda-water Plant.

Bratby & Hinchliffe offer the following:—Soda-water plant complete, to make 200 or 400 dozen per day by hand or power, including machine, cylinder, copper, gasometer, and lead generator, nearly new; 38l., all fittings, &c., included. Soda-water plant complete, to make 700 dozen per day, for power, including gasometer and generator of oak, with powerful pump and cylinder, with all fittings, 50l.; in excellent order. Soda-water plant complete, to make 900 dozen per day, for power, including gasometer of copper in oak tub, generator of lead, and 2½ gun-metal pump and cylinder, with all fittings, price 58l.; a great bargain. Three-horse power horizontal steam-engine, and three-horse power vertical boiler, only been used three times; the engine is fitted with pump, fly-wheel, driving pulley, governors, and all fittings complete; boiler is fitted with two cross tubes, fire-box, water and pressure gauges, and all complete; price the lot 38l. Pott Street, Ancoats, Manchester.

Shop Fittings.

Glass displacement apparatus, half gallon; glass percolator, 1-gallon; what offers in exchange? 183/36.

Excellent label drawer, 48 partitions in upper, 28 in lower part, cheap. S. Barlow, Darlington.

Glass case, Maw's fig. 52; Epps' homœopathic case, nearly complete, No. 5; 1-gallon tincture press; iron mortar, fig. 1 Maw's. 176/8.

Nest stained mahogany deal drawers, 64, with cupboards under, patent knobs, gold labels, 5l. 10s., cost 8l., nearly new; 20 dozen assorted shop rounds, 6s. dozen. Giles, Leeds.

2 ft. long upright show-case, with desk, as fig 13 Maw's; 2 ft. 3 long ditto; 2 ft. 3 long ditto, as 13 Maw's and 37; sponge cases, as 90 and 92 Maw's; 3 and 4 ft. long handsome show-stands, as 19 Maw's; 2 ft. 6 long ebonyed showstand; tooth-brush cases, as 52 and 72 Maw's; label chest, as 26 Maw's; 4 counter-cases, as 81 Maw's; 5 ft. 6 long counter-case, as 97 Maw's; 9 ft. 6 long superior bent plate-glass counter-cases, as 104, 105 Maw's; show-cases, as 73, 40, 99, 100 and 101 Maw's; soda-water stands, as 59 and 63 Maw's; cigar cases, as 53 and 83 Maw's; dispensing-case screens, as 163, 164, 165 Maw's, all sizes; 4 ft. long office table, as 223 Maw's; 6 ft. office desk, as 226 Maw's; 2,350 handsome gold-labelled shop bottles, all sizes; 800 gold-labelled ointment and ext. jars, all sizes; quantity oil bottles, acid bottles, syr. bottles, block-glass store bottles, upright and carboy shape, with gold label, japan and gilt caps; quantity show jars and lozenge jars, as figs. A, C, D, 1 and 2 Maw's; quantity specic jars, window carboys, mortars and pestles, scales, tincture presses, pill machines, cork presses, &c. Lloyd Rayner, Chemists' Shop Fitter, and Fixture Dealer, 333 Kingsland Road, London, N.

To parties refitting or altering. — Drawers, bottles, cases, very cheap, list on application. 182/8.

Plate-glass counter-cases, as fig. 105, 5 ft. long, 6 ft. long, 7 ft. 8 ft. long, 9 ft. 3 ft., as fig. 16, 40s.; 4 ft. 6 in. ditto, 50s.; 5 ft., fig. 41, 5 ft.; 4 ft. ditto, 80s.; 3 ft., with shelf at back, 50s.; 7 ft. fig. 97, 7 ft.; 5 ft., ditto, 5 ft.; 6 ft., as fig. 99, 7 ft.; fig. 96, 5 ft. long, 1 ft.; 3 ft. and 3 ft. 6 in., as fig. 100, 60s.; 4 ft., as fig. 101, 80s.; show-stand, fig. 55, toothbrush-cases, fig. 52, 30s. and 35s.; also a number of other cases, all sizes, very cheap. E. Natali, 207 Old Street, E.C.

A mahogany fixture as Maw's fig. 191, gold labelled and glass knobs; a 12 ft. ditto, ditto, as Maw's fig. 197; 12 ft. run drawers, as 179; a 5 ft. nest, 3 ft. 9 in. nest, 4 ft. nest, &c. &c.; 12 ft. wall case, 7 ft.; a 4 ft. 6 in. wall-case, plate-glass, 4 ft. 10s.; 4 ft. wall-case, 70s.; a very elaborate plate-glass wall-case as Maw's fig. 210, 8 ft. long, 18 ft.; worth double; 6 ft. mahogany counter, 12 ft. ditto, 14 ft., 12 ft., 10 ft., 9 ft., 8 ft., 7 ft., 6 ft., mahogany top-counters, very cheap, equal to new. E. Natali, 207 Old Street, nearly opposite Great Eastern Street.

4 ft. and 4 ft. 6 in. dispensing screens, as fig. 163; 5 ft. and 6 ft., as fig. 164; also, 8 ft., as fig. 165; all with tablets on top, very cheap; 5 ft., as fig. 178; one each plate glass dispensing screen, 7 ft. and 6 ft. long, with a glass case at each end, with silvered glass in centre, with marble slab in front, tablets and fretwork on top, silvered glass back inside, cases very elaborate, bargains; sponge-cases, fig. 92, 5 ft.; and fig. 93, 6 ft.; desk and glass case, fig. 21, 65s.; fig. 39, 45s.; a 6 ft. 4 in. upright glass case, 32 in. high, 4 ft.; an upright case, with bent glass end, 68 in. long, 28 in. high, 4 ft. 10s.; 8 ft. upright case, similar to fig. 165, 31 in. high, 6 ft. E. Natali, 207 Old Street, E.C.

2 feet 4 long, 2 feet 6 long, 3 feet long, 4 feet long, 5 feet long, 6 feet long, 8 feet long, 8½ feet long, 10 feet long, 12 feet long, 14½ feet long, 17 feet long, 20 feet long second-hand mahogany wall cases with cupboard under, forming complete fittings from 8 feet to 9 feet high; 13 feet 2 long handsome plate-glass wall case as 212 Maw's; 20 nests gold-labelled shop drawers, all sizes; quantity gold-labelled shop drawers, with lockers under, shelving and cornice above, forming complete fittings, from 8 to 9 feet high, and in all lengths as 188, 190, 194, 197 Maw's; 13 feet long superior nests' large mahogany gold-labelled shop drawers with mahogany cupboard and circular mahogany ends, with mahogany-moulded cupboard on top, 3 feet high, 15 inches deep; 10 nests deal-stained mahogany shop drawers, with lockers and shelving above, all lengths; 10 feet long, 11 feet 6 long, 12 feet long, 15 feet long, 19 feet 9 long superior mahogany top counters, with drawers under; 18 mahogany top counters, from 3 feet to 20 feet long; 10 feet long superior mahogany-moulded top counter, with plate-glass case front; 12 feet 3 long superior ebouissé side counter case, with 6 glass doors to open, with ebouissé sloping front plate-glass case on top, with 6 plate-glass doors to lift up in front, silvered plate-glass back 4 feet 8 high, 19 inches deep, suitable also to stand in centre of shop. Lloyd Rayner, Wholesale and Export Shopfitter and Fixture Dealer, Show Rooms and Offices, 333 Kingsland Road. Factories, 2 Downham Road and Whitmore Road, Hoxton, London, N.

Window-fittings. — Four upright rods of ¾-inch twisted brass tube, 4 ft. 1 in. in height (vide Maw's list, p. 214, fig. 59); 8 fixing-plates, fig. 25; 4 rising brass rack-brackets, fig. 54; 4 twisted brass rods, 4 ft. long, to lay on the above; 4 brass brackets, fig. 51; 4 plate-glass shelves, 4 in., ¾, by 3 ft. 6 in., ground edges; 4 twisted brass arms, fig. 21; 16 sliding-sockets, fig. 21. The above cost nearly 6 ft. a short time ago, and are as good as new. What offers? "Chemist," 2 Queen's Terrace, St. John's Wood.

Sixteen 4-lb. olive shop-jars, 2s. each; 8 3-lb. ditto, 1s. 4d. each; 4 2-lb. ditto, for 3s. 6d.; No. 11 bell-shape tinned-iron mortar, 6s.; 2 No. 4 ditto, for 2s. 6d.; root-cutter on mahogany slab, spring joint, 9s.; 4 dozen Burrows' soda-water rack, 9s. (all quite new); fluted-pillar radiating gas-stove, suitable for shop, 7s. 6d.; marble mortar, 16 in. diameter, holding 14 pints; gallon York Glass Company's patent percolator, equal to new, 22s.; patent glass taps, suitable for spirit or vinegar kegs, with screw and bung complete, 1s. 4d. each. Botham, 180 Bury New Road, Manchester.

Financial.

Four 25l. debentures Faversham Brickfields, pay 10 per cent. quarterly, price 22½ 10s. each. 181/17.

Formulæ.

Blue-black ink, non-corrosive (sine iron or galls) dries rapidly; made in 5 minutes; 10s. 175/25.

Cherry tooth-paste, 2s.; cold cream, 1s.; liquid cochineal, 2s.; toilet vinegar, 2s. 6d., 6s. the lot, warranted genuine. 51 Bontport Street, Barnstable.

Glycerine cough linctus, a brilliant bright red preparation, and extremely efficacious, will keep any length of time, one of the most elegant preparations ever offered. Free on receipt of 13 stamps from H. Lloyd, late of Dawlish, manufacturing chemist, Upton-on-Severn.

The undermentioned valuable and well-tried formula, at the very reasonable rate of nine stamps each, or 6s. 6d. for the 10; essence of coffee, toilet vinegar, more fragrant than Rimmel's; lime juice and glycerine, white and inseparable; the Epicure's sauce, extract of roses and rosemary, hair wash, superior ginger-beer powder, polishing paste for brasses, curry powder, Bengal chutney, mulligatawny or curry paste, valuable Indian recipes. Address, "Chemicus," 6 Mulberry Place, Edinburgh.

Fragrant foaming dentifrice (similar to Floriline); glycerine jelly (perfectly transparent); cherry tooth paste (never ferments); brilliantine (inseparable); lime-juice and glycerine (inseparable and perfectly white); splendid black ink (never corrodes steel-pens); marking ink (black or red); effervescent fruit saline (resembles Eno's); pill-coating (pearly white, no mucilage or mastic used); magic neuralgic drops (never-failing remedy); quinine and iron tonic (resembles Pepper's); excellent chilblain paint; cough mixture (clear red, effective, and agreeable); with many others; send stamp for list. The toilet articles are identical with those prepared by a renowned West-end perfumer; the others are equally good; all inexpensive to prepare; 5s. each (five for 1½); inquiry letters must be prepaid. "Analyst," care of Mr. Warnes, 79 Gaisford Street, N.W.

The recipe for a very superior perfume, equal to Mona Bonquet, price 3s. "Chemist, 20 Dean Street, Westminster, Bristol.

Indestructible marking-ink (*sine silver*), usable with any pen, requires no heating, writing unobliterated by chemicals; brilliant polish for leather (resembles "Nubian" blacking, soluble essence of ginger (equal to Hay's) cherry tooth-paste (never ferments), elixir (or vinum) pepsinae, toilet vinegar (equal to Rimmel's), with several others. Send stamp for list, all genuine and reliable, 5s. each (five for 1½). "Analytical Chemist," Herbert Heblethwaite, Cumberland Market N.W.

Miscellaneous.

15-carat gold keyless lever watch, 6l. 10s. 183/5

Several gross 6-oz. baking-powder tins, 12s. gross Craven, Batley-Carr.

30s. Taylor's sewing-machine, twisted loop, new 16s. White, Litcham, Swaffham.

Ten gross 1½-inch long velvet corks, 17s., cheap at 2s. gross. Eastman, Chemist, Tottenham

Forces, mixing machine, grinding mill, tincture press, signs for corner shop, enema cheap. 40 Sutton Street, Sheffield.

A very fine-tuned violin, Stradivarius, copy, in handsome case, and mounted bow, price 30s. approval. J. Riley, 2 Cross Lane, Salford.

Bronze powder, small quantity, good, and very cheap, to suit buyers, sample and particulars free. H., 70 Monier Road, Wick Lane, Old Ford, London.

My collection of over 1,000 genuine autograph prescriptions, in one lot 7s. 6d., or 1s. per 100, post free. J. Cokayne, 6 Finkin Street, Grantham, Lincolnshire.

Superior rubber stamps, cheap for cash, or exchange for good chemist's literature, or anything saleable. White, Litcham, Swaffham.

Pair of Colt's patent muzzle-loading revolvers, in case complete, good as new, cost 21½, price 5½ 10s., or 65s. each; Pereira's "Materia Medica," 6s.; dental forceps; microscope; 26-inch portmanteau taken as part cash. Healy, New Road, Spalding.

2½ doz. Wilkinson's drops, 4s. 6d.; 1 doz. 6d. knife-polish; 1 doz. 6d. Hassall's food; 1 30-gall. oil cistern, with lid and tap; enamelled water bath and stove complete cost 18s.; 10 lbs. hartshorn shavings; what offers, cash or saleable patents? Woodcock, Chemist, Magdalen Street, Norwich.

WANTED.

New English honey. Hubbard & Son, Walsall.

Soda-water stand. K., 14 Blaydon Street, Blyth.

"Year-book of Pharmacy," vols. 1871-72. H., 22 Berkeley Street, Southsea.

Lignums drops, soiled or clean; 7 lbs. good opium. 177/19.

Cooley's "Cyclopaedia of Practical Receipts," latest edition. 182/9.

Wanted, cheap, latest editions Pereira's "Materia Medica" and British Pharmacopoeia. Hall, Levenshulme.

Two nests mahogany-fronted fittings or drawers, about 14 ft. and 7 ft. long; must be in good condition and cheap. T. Wilson, Lenton, Nottingham.

The best price given for all kinds of chemist's shop fixtures and utensils, in any quantities. Lloyd Rayner, 333 Kingsland Road, London, N.

Trade Report.

THE Board of Trade returns for the month of August again show steady improvement, and the satisfactory harvest which has been now nearly completed promises a continuance and good development of the prosperity which has been so hopefully begun. The imports of wheat and barley are less than they were last year at this time, while in many other articles of food, and in the raw materials for certain manufactures, the imports have increased. All these facts indicate increase of wealth. The exports of British and Irish produce for the month reached 19,088,115*l.*, as against 7,336,308*l.* in August, 1879. The improvement is fairly well spread over all branches of trade. The figures relating to chemical products are as follows:—

		August, 1879	August, 1880
Alkali	cwt.	519,798	596,035
Alkali	£	160,709	212,835
Other chemicals	£	170,854	183,300

The demand for English chemicals is well maintained, and makers are unwilling as a rule to enter into forward contracts on present terms. The alkali works are reported fully occupied, but the capacity of production is so extended that the enlarged trade which has developed within the past three months has not enhanced the prices generally. Citric acid has experienced a new rise, and though it has sold in quantity at 2*s.* 1½*d.* for immediate delivery, contracts for future delivery have been refused at less than 2*s.* 3*d.* Tartaric has been rather weaker in consequence of the desire manifested by some small holders to dispose of their stocks, and cream of tartar has still continued on the decline. It now stands at 115*s.* to 116*s.* for first whites, and is dull of sale at that price. No doubt the prospect of a good vintage has influenced the quotations.

Bleaching powder is quiet at 6*l.*, landed in London. Oxalic acid is steady at 4*d.* Borax is still quoted at 63*s.* for refined English.

Iodine has been dull since our last and selling at 6½*d.*; some recovery occurred lately, but flatness has again supervened, and the present value is 7*d.* to 7½*d.* per oz., or 13*s.* 4*d.* per lb. for resublimed. Speculation in anticipation of the 1*s.* 6*d.* per oz., which a couple of months ago was so certain, seems to have pretty nearly died out.

Quinine is unchanged from last month's prices, but makers are more ready to take orders.

Quicksilver is a trifle lower.

The price of refined camphor is firmly maintained, though the crude has up till now steadily declined. The latter is held firmly at latest quotations.

The position of opium and its alkaloids still continues puzzling. With momentary flashes of firmness the drug relapses into intervals of dullness. The market does not seem to believe in the rise so confidently predicted in many quarters. But it must be said that the prophets seem to argue from ascertained facts, while the market judges from its own callousness to reports which have so often proved false. The undeniable facts are, however, that the opium crop is very short this year, and that a large portion of it is controlled by a syndicate of speculators. On the other hand it seems to be also the fact that the quantity in second hands was much larger than was anticipated, but even "the market" will hardly suppose that this will suffice to supply the consumption of Europe and America all through the winter.

There has been but a moderate private demand for barks, but at the sales last week full prices were generally obtained for good and fine qualities. Ceylon crown of a special brand reached 10*s.*, and there was active competition for several parcels of this kind of bark. South American kinds were in abundant supply, but out of 5,000 packages only about 800 were disposed of, holders being unwilling to yield to the views of buyers.

Calumba Root.—Last public price, 120*s.* to 122*s.* 6*d.* The little that comes into the market is readily snapped up. Camomile flowers.—New Belgian flowers selling at 52*s.* to 61*s.*; fair old, 28*s.* to 30*s.* The samples seem to indicate a good as well as an abundant crop.

■ Cubebs.—The supply does not much improve and high rates are still maintained.

Gums.—Arabic sells at full rates for East Indian kinds. Ammoniacum and animi are both firmly held. Activity

has ceased in Benjamin, but late prices are supported. Gamboge has been bought up, and is now let go only at advanced rates. Myrrh is in insufficient supply, and shows a tendency upwards. The case is the same with regard to olibanum, but kowrie is rather cheaper. An active demand for shellac last month, chiefly on American account, caused a considerable advance, but the liveness has slackened, and prices, though a good deal above those of last month, are below the best points touched.

Isinglass.—The late advance is well sustained in the face of only moderate arrivals.

Ipecacuanha has been bought at slightly advanced rates, and jalap of fine quality is readily taken.

New Jamaica honey made 50*s.* for a small lot of good fair at last sales; lower quality has sold at 35*s.*

Rhubarb is dull at previous prices, but some activity has been developed in Tinnevely senna. Coca leaves bought at 1*s.* 6*d.*; Duboisin at 5*s.*; and Jaborandi at 1*s.* to 1*s.* 3*d.* Buchu leaves are scarce. Areca nuts at 35*s.* Spanish ergot held for 1*s.* 6*d.*

Jamaica ginger has advanced 20*s.*, 30*s.*, and 40*s.* per cwt., according to quality. Chillies have been more abundant, and are 10*s.* per cwt. lower, Zanzibar selling at 69*s.* to 70*s.* At the last cinnamon sales an advance of from 3*d.* to 6*d.* per lb. was established. Mace and nutmegs are firm, but only slightly dearer. Cloves, after being quiet, have shown more activity within the past week, and Penang now sells for 2*s.* 3½*d.*

Almond oil is cheaper. Castor oil is rather firmer, with a tendency to go still higher. Cod-liver oil is also more readily bought at somewhat stronger figures. An advance in the seeds has caused linseed oil to be higher, and the influx of a little business in olive oils has caused a corresponding advance in that market.

Glycerine has advanced with steadiness, and anticipations of high prices for the winter are indulged.

Turpentine has been up to 26*s.* 6*d.*, but is now on the ebb, 25*s.* 9*d.* to 25*s.* 6*d.* having been accepted for spot, and 26*s.* for the next three months' deliveries.

Petroleum has slightly hardened during the past week, and as this movement coincides with the commencement of the consuming season it may have some meaning. The stock and production of crude oil is enormous, but the market is to a great extent at the mercy of a syndicate of refiners, and if it should prove, as is supposed, that forward contracts have not been made to the usual extent, buyers may be caught as they have been on former occasions.

Gazette.

LIQUIDATIONS.

- ALDERSLADE, WILLIAM, 489 Commercial Road, Landport, Portsmouth, chemist. August 18.
COX, EDWIN, High Street, Quarry Bank, par. Kingswinford, grocer and druggist. September 6.
DAVIS, MARY ELIZABETH, & DAVIS, HENRY JOHN, Newbury, chemists and druggists and oil and colour merchants, trading as Davis & Sons. August 9.
EVANS, EVAN THOMAS, 57 Cardiff Road, Mountain Ash, chemist and druggist. August 6.
FLETCHER, ROBERT, 56 Rowley Village, Rowley Regis, druggist, grocer, and butcher. August 20.
HADDOCK, ALICE, 35 North Street, Brighton, chemist and druggist. September 7.
LEWIS, JOHN PHILIP, High Street, Rickmansworth, chemist. September 4.
MALINGS, JOSEPH EDWARD, Deddington, chemist and druggist and farmer. August 9.
READE, WILLIAM JAMES, Tower Varnish Works, Nechells, near Birmingham, and Rue de Malte, Paris, 5 Steel's Buildings, Church Street, Liverpool, and 79 Market Street, Manchester, under style of Reade Brothers. September 7.
SEWELL, HENRY, 17 Wornage, Boston, chemist and druggist. August 17.
WEBB, FREDERICK BROOKS, Southminster, chemist and druggist. September 8.

BANKRUPTS.

- DIXON, JAMES WILLIAM, 13 Hanover Street, Hanover Square, under style of I. & C. Paget, patent medicine vendor. Petitioning creditors—C. F. Mozley, 72 Turnmill Street, Clerkenwell. Solicitor—Brooks, 16 King Street, Chapside. September 1.
MALINGS, JOSEPH EDWARD, Deddington, chemist and druggist, and farmer. August 21.

PARTNERSHIPS DISSOLVED.

- BRADDOCK, GEORGE, & BAGSHAW, WILLIAM, Market Place, and Yorkshire Street, Oldham, chemists and druggists. August 25.
WOODHEAD, JOSHUA, & BUTTERWORTH, BENJAMIN, JUN., Burnlee, near Holmfirth, manufacturing chemists and commission agents. August 11.

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mining Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

CHEMICALS.		1880.		1879.	
ACIDS—		s. d.	s. d.	s. d.	s. d.
Acetic	per lb.	0 3½	to 0 4	0 2½	to 0 3½
pure	"	0 4	.. 0 7½	0 0	.. 0 0
glacial	"	0 10	.. 0 10½	0 0	.. 0 0
Benzoic Sublimated	"	6 9	.. 0 0	0 0	.. 0 0
Ex. Gum.	per oz.	0 9	.. 0 0	0 0	.. 0 0
Citric	"	2 1	.. 0 0	1 7½	.. 0 0
Gallic	"	4 3	.. 0 0	0 0	.. 0 0
Hydrochlor.	per cwt.	5 0	.. 7 0	4 0	.. 7 0
Nitric	per lb.	0 4	.. 0 0	0 4	.. 0 0
Oxalic	"	0 4	.. 0 0	0 4	.. 0 4½
Salphuric	"	0 0½	.. 0 1	0 0½	.. 0 1
Salicylic	"	8 0	.. 8 6	0 0	.. 0 0
Tannic	"	1 8	.. 2 8	0 0	.. 0 0
Tartaric crystal.	"	1 7½	.. 1 7½	1 7½	.. 0 0
powdered	"	1 7½	.. 0 0	1 7½	.. 0 0
ANTIMONY ore	per ton	42 0	.. 0 0	240 0	.. 300 0
crude	per cwt.	42 0	.. 0 0	36 0	.. 0 0
star	"	65 0	.. 66 0	50 0	.. 54 0
ARSENIC, lump	"	23 6	.. 25 0	24 0	.. 0 0
powder	"	10 9	.. 11 0	10 3	.. 10 6
BRIMSTONE, rough	per ton	110 0	.. 112 6	105 0	.. 110 0
roll	per cwt.	8 9	.. 9 0	9 6	.. 10 6
flour	"	11 0	.. 12 6	10 6	.. 12 3
GLYCERINE, German	"	54 0	.. 70 0	0 0	.. 0 0
refined	"	39 0	.. 45 0	0 0	.. 0 0
crude brown	"	0 7	.. 0 0	1 2	.. 0 0
IODINE, dry	per oz.	1 0	.. 0 0	1 10	.. 0 0
MAGNESIA, calcined	per lb.	0 10	.. 0 0	0 0	.. 0 0
Pond, Hwds.	"	5 0	.. 0 0	0 0	.. 0 0
MERCURY	per bottle	140 0	.. 0 0	125 0	.. 0 0
MINIUM, red	per cwt.	16 0	.. 17 0	15 3	.. 0 0
orange	"	29 0	.. 0 0	28 6	.. 0 0
PRECIPITATE, red	per lb.	3 2	.. 0 0	3 2	.. 0 0
white	"	3 1	.. 0 0	3 1	.. 0 0
PRUSSIAN BLUE	"	0 0	.. 0 0	0 0	.. 0 0
SANTONINE	"	23 0	.. 0 0	0 0	.. 0 0
SALICIN	"	14 0	.. 0 0	0 0	.. 0 0
THYMOL	"	26 0	.. 27 0	0 0	.. 0 0
SALTS—					
Alum	per ton	130 0	.. 0 0	121 6	.. 125 0
powder	"	150 0	.. 0 0	140 0	.. 160 0
Ammonia :					
Carbonate	per lb.	0 6½	.. 0 6½	0 6½	.. 0 6½
Hydrochlorate, crude,	"				
white	per ton	580 0	.. 780 0	600 0	.. 720 0
Sulphate	per ton	385 0	.. 400 0	390 0	.. 400 0
Argol, Cape	per cwt.	73 0	.. 95 0	75 0	.. 80 0
Red	"	70 0	.. 79 0	50 0	.. 70 0
Oporto, red.	"	36 0	.. 36 6	28 0	.. 32 0
Sicily	"	0 0	.. 0 0	60 0	.. 65 0
Bleaching powd.	"	6 0	.. 6 3	5 9	.. 0 0
Borax, British refnd.	"	63 0	.. 0 0	35 0	.. 36 0
Calomel	per lb.	2 9	.. 0 0	2 9	.. 0 0
Chloral hydrate, Saame's ..	"	4 2	.. 4 4	0 0	.. 0 0
Liebreich's	"	5 6	.. 6 0	0 0	.. 0 0
Copper :					
Sulphate	per cwt.	20 3	.. 20 6	18 0	.. 0 0
Copperas, green.	per ton	50 0	.. 55 0	50 0	.. 55 0
Corrosive Sublimate p. lb.	"	2 3	.. 0 0	2 3	.. 0 0
Cr. Tartar, French, p. cwt.	"	115 0	.. 0 0	103 0	.. 104 0
brown	"	96 0	.. 0 0	80 0	.. 82 6
Epsom Salts	"	4 6	.. 5 0	4 6	.. 6 0
Glauber Salts	"	3 0	.. 5 0	3 0	.. 4 6
Magnesia: Carbonate ..	"	42 6	.. 0 0	47 6	.. 0 0
Pond, Hwds.	"	74 0	.. 0 0	0 0	.. 0 0
Morphia Murias	"	11 6	.. 0 0	8 0	.. 0 0
Potash :					
Bichromate	per lb.	0 6	.. 0 0	0 5	.. 0 0
Carbonate :					
Potashes, Canada, 1st ..	sort	26 6	.. 27 0	22 0	.. 0 0
Pearlshes, Canada, 1st ..	sort	30 0	.. 0 0	49 0	.. 0 0
Chlorate	per lb.	0 6½	.. 0 0	0 6½	.. 0 0
Prussiate	"	0 10½	.. 0 11	0 11	.. 0 11½
red	"	1 9	.. 1 10½	1 9	.. 1 10½
Tartrate (see Argol and Cream of Tartar)	"				
Potassium :					
Bromide	"	1 7	.. 1 8	1 8	.. 0 0
Chloride	per cwt.	7 0	.. 7 3	0 0	.. 0 0
Iodide	per lb.	12 6	.. 0 0	16 6	.. 0 0
Quinine :					
Sulphate, British, in ..	bottles	12 8	.. 0 0	12 6	.. 0 0
Sulphate, French	"	12 6	.. 0 0	12 3	.. 12 6
Sulphate, German	"	12 3	.. 12 6	0 0	.. 0 0
Sal Acetos	per lb.	0 6½	.. 0 7	0 6	.. 0 6½
Sal Ammoniac, Brit. cwt.	"	44 0	.. 45 0	44 0	.. 45 0

		1880.		1879.	
Saltpetre:		s. d.	s. d.	s. d.	s. d.
Bengal, 6 per cent. or ..	under	21 6	to 22 0	18 3	to 18 9
Bengal, over 6 per cent. ..	per cwt.	20 6	.. 21 3	17 3	.. 18 0
British, refined	"	25 6	.. 27 0	22 0	.. 23 9
Soda: Bicarbonate	"	10 6	.. 10 9	9 0	.. 9 3
Hwds.	"	45 0	.. 0 0	0 0	.. 0 0
Carbonate:					
Soda Ash	per deg.	0 1½	.. 0 0	0 1½	.. 0 0
Soda Crystals per ton	"	72 6	.. 73 0	63 9	.. 0 0
Caustic	"	10 6	.. 11 8	9 3	.. 9 6
Hyposulphite, per cwt.	"	8 0	.. 0 0	0 0	.. 0 0
Nitrate	"	14 6	.. 0 0	14 6	.. 14 9
Zinc Sulphate	"	10 0	.. 12 0	0 0	.. 0 0
SUGAR OF LEAD, Whitecwt.	"	37 6	.. 38 9	37 6	.. 38 0
Brown, cwt.	"	30 0	.. 0 0	26 6	.. 0 0
VERDIGRIS	per lb.	0 10½	.. 1 2	1 1	.. 1 5
VERMILION, English	"	2 8	.. 0 0	2 2	.. 0 0
China	"	2 0	.. 2 2	1 10	.. 2 0
DRUGS.					
ALOES, Hepatic	per cwt.	60 0	.. 150 0	70 0	.. 160 0
Socotrine	"	60 0	.. 190 0	100 0	.. 200 0
Cape, good.	"	43 0	.. 45 0	54 0	.. 55 0
Inferior	"	37 6	.. 42 6	48 0	.. 53 0
Barbados	"	50 0	.. 190 0	55 0	.. 200 0
AMBERGRIS, grey	oz.	65 0	.. 90 0	65 0	.. 80 0
BALSAM—					
Canada	per lb.	0 6	.. 0 0	1 0	.. 1 1
Capivi	"	2 6	.. 3 3	1 5	.. 1 9
Peru	"	7 9	.. 8 0	5 9	.. 8 0
Tolu	"	2 6	.. 2 7	3 0	.. 3 3
BARKS—					
Canella alba	per cwt.	12 0	.. 18 0	17 0	.. 25 0
Cascarilla	"	17 0	.. 21 0	17 0	.. 24 0
CINCHONA—					
Calisaya, good and fine ..	per lb.	8 0	.. 9 0	7 6	.. 12 6
medium	"	3 0	.. 5 0	3 6	.. 5 0
N. Granad., fair to fine ..	"	5 0	.. 6 0	0 0	.. 0 0
ord. to mid.	"	2 0	.. 4 6	0 0	.. 0 0
Columbian, fine	"	3 11	.. 4 11	4 0	.. 6 4
ord. to fair	"	1 0	.. 2 0	1 6	.. 3 6
Carthagen, good	"	4 3	.. 4 11	2 8	.. 4 6
E. I. mossed	"	4 6	.. 8 0	0 0	.. 0 0
Ceylon, crown	"	6 6	.. 10 0	4 0	.. 7 0
red	"	1 6	.. 4 0	0 0	.. 0 0
Darjeeling, red fine	"	3 6	.. 4 0	3 0	.. 3 9
BUCHU LEAVES	"	0 2	.. 0 11	0 1½	.. 1 5
CAMPHOR, China	per cwt.	77 6	.. 0 0	80 0	.. 0 0
Japan	"	77 6	.. 80 0	82 6	.. 0 0
Refin. Eng. per lb.	"	1 3	.. 0 0	1 3	.. 0 0
CANTHARIDES, China	"	1 7	.. 1 11	1 7	.. 1 8
Russian	"	3 7	.. 3 11	4 3	.. 4 6
CHAMOMILE FLOWERS	p. cwt.	40 0	.. 80 0	0 0	.. 0 0
CASTOREUM	per lb.	12 0	.. 26 0	0 0	.. 0 0
DRAGON'S BLOOD, Ip.	p. cwt.	90 0	.. 350 0	95 0	.. 265 0
FRUITS AND SEEDS (see also Seeds and Spices).					
Anise, China Star per cwt.	"	80 0	.. 90 0	87 6	.. 90 0
Spanish, &c.	"	30 0	.. 33 0	35 0	.. 40 0
Beans, Tonquin	per lb.	4 6	.. 7 0	4 6	.. 6 6
Cardamoms, Malabar ..					
good	"	6 6	.. 9 6	8 3	.. 9 1½
Inferior	"	2 11	.. 6 0	3 9	.. 8 0
Aleppy	"	2 9	.. 7 4	4 6	.. 9 6
Madras	"	2 6	.. 5 6	2 0	.. 7 6
Ceylon	"	3 0	.. 4 0	3 6	.. 4 0
Cassia Fistula	per cwt.	15 0	.. 25 0	33 0	.. 40 0
Cocculus Indicus	"	7 6	.. 8 0	7 6	.. 8 6
Colocynth, apple	per lb.	1 3	.. 1 6	1 3	.. 1 6
Croton Seeds	per cwt.	45 0	.. 50 0	28 0	.. 30 0
Cubebs	"	60 0	.. 70 0	45 0	.. 0 0
Cumin	"	30 0	.. 38 0	20 0	.. 40 0
Fenugreek	"	9 0	.. 11 0	10 0	.. 0 0
Guinea Grains	"	62 6	.. 0 0	0 0	.. 0 0
Juniper Berries	"	0 0	.. 0 0	3 6	.. 6 0
Nux Vomica	"	8 0	.. 9 6	6 6	.. 9 0
Tamarinds, East India, ..	"	7 0	.. 12 0	11 0	.. 15 0
West India	"	10 0	.. 14 6	11 0	.. 20 0
Vanilla, large	per lb.	15 0	.. 18 0	38 0	.. 40 0
inferior	"	8 6	.. 14 6	20 0	.. 37 6
GINGER, Preserved	"	0 5½	.. 0 6½	0 5	.. 0 6
HONEY, Chili	per cwt.	40 0	.. 50 0	30 0	.. 34 0
Jamaica	"	35 0	.. 40 0	32 0	.. 40 0
INPECACUANHA	per lb.	4 4	.. 5 10	4 3	.. 5 6
ISINGLASS, Brazil.	"	2 3	.. 4 11	2 6	.. 5 4
Tongue sort	"	2 9	.. 5 0	2 9	.. 5 7
East India	"	1 0	.. 5 0	0 9	.. 4 6
West India	"	3 0	.. 4 6	2 10	.. 5 2
Russ, long staple	"	6 0	.. 10 6	6 0	.. 10 6
inferior	"	0 0	.. 0 0	0 0	.. 0 0
Simovia	"	2 0	.. 2 6	1 6	.. 2 6
JALAP, good	"	0 11	.. 1 2	0 10	.. 1 0
infer. & stems	"	0 9	.. 0 10	0 9	.. 0 10½
LEMON JUICE	per degree	0 0½	.. 0 1½	0 0½	.. 0 1½
LIME JUICE	per gall.	1 4	.. 1 9	1 3	.. 1 7
LIQVORICE, Spanish	per cwt.	30 0	.. 36 0	30 0	.. 36 0
Liquorice Root	"	16 6	.. 25 0	30 0	.. 0 0
MANNA, flaky	per lb.	0 0	.. 0 0	3 6	.. 4 0
MUSK, Pod	per cwt.	10 0	.. 57 0	16 0	.. 70 0
Grain	"	35 0	.. 68 0	30 0	.. 70 0
OILS (see also separate list)					
Almond, expressed	per lb.	1 5	.. 0 0	1 7	.. 0 0
Castor, 1st pale	"	0 3½	.. 0 4½	0 4½	.. 0 5½
second	"	0 3½	.. 0 3½	0 3½	.. 0 4
Cod Liver	per gall.	2 4	.. 4 6	2 6	.. 4 6
Croton	per oz.	0 0	.. 0 0	0 2½	.. 0 2½

1880.				1879.				1880.				1879.			
Essential Oils:								Oils, continued:—							
Almond	18	0	to 22	0	0	to 0	0	BODY	0	0	to 0	0	0	to 0	0
Anise-seed, star..	7	9	.. 0	0	7	0	0	God	26	0	.. 26	10	27	0	.. 0
" German ..	12	0	.. 0	0	0	0	0	WHALE, South Sea, pale	28	0	.. 0	0	23	0	.. 0
Bergamot	8	0	.. 10	0	0	0	0	" yellow ..	27	0	.. 0	0	23	0	.. 0
Cajuput..... per bottle	5	9	.. 0	0	3	6	4	" brown ..	20	0	.. 22	0	16	0	.. 19
Caraway..... per lb.	3	0	.. 7	0	0	0	0	East India, Fish ..	0	0	.. 0	0	0	0	.. 0
Cassia	3	9	.. 0	0	2	10	2	OLIVE, Galipoli..... per ton	0	0	.. 0	0	0	0	.. 0
Cinnamon..... per oz.	4	6	.. 0	0	4	0	5	Gloja.....	42	0	.. 0	0	0	0	.. 0
Cinnamon-leaf ..	0	2½	.. 0	3	0	1½	0	Levant	38	10	.. 41	0	42	0	.. 0
Citronelle	0	3½	.. 0	0	0	3	0	Mogador	0	0	.. 0	0	0	0	.. 0
Clove	7	6	.. 0	0	9	0	0	Spanish	42	0	.. 0	0	45	0	.. 0
Lavender Exot., per lb.	1	6	.. 7	3	1	8	7	Sicily	42	0	.. 0	0	44	0	.. 41
Mitcham ..	105	0	.. 0	0	0	0	0	COCOANUT, Coch.	36	0	.. 37	10	44	10	.. 0
Lemon	6	0	.. 8	6	4	6	11	Ceylon ..	33	0	.. 34	5	36	0	.. 36
Lemongrass..... per oz.	0	2½	.. 0	0	0	2½	0	Mauritius ..	34	0	.. 35	0	37	0	.. 37
Neroli	7	0	.. 10	3	6	0	9	GROUND NUT AND GINGELLY:							
Nutmeg	0	4	.. 0	5	0	3	0	Bombay	0	0	.. 0	0	0	0	.. 0
Orange	7	6	.. 8	0	5	0	7	Madras	0	0	.. 0	0	0	0	.. 0
Otto of Roses..... per oz.	10	0	.. 24	0	18	0	30	PALM, fine.....	32	0	.. 0	0	31	10	.. 32
Patchouli	2	4	.. 3	10	1	6	3	LINSEED	27	5	.. 27	10	28	0	.. 0
Peppermint:								RAPESEED, English, pale ..	31	10	.. 30	12/6	30	15	.. 0
American..... per lb.	13	6	.. 0	0	7	6	9	brown	29	10	.. 23	12/6	28	15	.. 0
(H. G. Hotchkiss),	14	0	.. 0	0	0	0	0	Foreign, pale ..	0	0	.. 0	0	0	0	.. 0
English	32	0	.. 0	0	21	0	23	brown	0	0	.. 0	0	0	0	.. 0
German	13	0	.. 0	0	0	0	0	COTTONSEED	27	0	.. 27	10	28	0	.. 28
Rosemary	1	6	.. 2	11	2	0	2	LARD	44	10	.. 46	0	33	10	.. 35
Sassafras	2	6	.. 0	0	2	0	2	TALLOW	27	0	.. 0	0	30	0	.. 35
Spearment	13	0	.. 0	0	8	0	9		s. d.		s. d.		s. d.		s. d.
Thyme	1	6	.. 4	2	0	0	0	TURPENTINE, American, cwt.	26	0	.. 0	0	21	0	.. 0
Mace, expressed .. per oz.	0	0	.. 0	0	0	5	0	French ..	0	0	.. 0	0	0	0	.. 0
OPIMUM, Turkey..... per lb.	22	0	.. 24	0	15	6	19	PETROLEUM, Crude	0	0	.. 0	0	0	0	.. 0
inferior	18	0	.. 21	0	12	6	15	refined, per gall.	0	8½	.. 0	8½	0	6½	.. 0
QUASSIA (bitter wood) per ton	160	0	.. 110	0	100	0	130	Spirit ..	0	8½	.. 0	9	0	7½	.. 0
RHUBARB, China, good and								SEEDS.							
fine	2	9	.. 4	5	2	6	3	CANARY..... per qr.	33	0	.. 50	0	46	6	.. 53
Mid. to fair	1	6	.. 2	8	1	6	2	CARAWAY, English per cwt.	0	0	.. 0	0	0	0	.. 0
Ordinary	0	8	.. 1	5	0	9	1	German, &c.....	25	0	.. 3	0	0	0	.. 0
ROOTS—Columba..... per cwt.	110	0	.. 122	6	27	0	40	CORIANDER	14	0	.. 20	0	14	0	.. 18
China	23	0	.. 24	0	28	0	30	HEMP	34	0	.. 40	0	39	0	.. 44
Chiretta	0	0	.. 0	0	0	2½	0	LINSEED English	60	0	.. 68	0	60	0	.. 68
Galangal	21	0	.. 22	6	23	0	0	Black Sea & Azof ..	51	6	.. 0	0	51	0	.. 0
Gentian	20	0	.. 0	0	18	0	20	Calcutta ..	51	6	.. 0	0	52	0	.. 0
Orris	26	0	.. 37	6	20	0	45	Bombay ..	53	0	.. 0	0	53	6	.. 0
Pellitory	0	0	.. 0	0	70	0	76	St. Petersburg ..	50	0	.. 0	0	48	6	.. 50
Pink	0	8	.. 1	3	1	0	1	Mustard, brown, per bshl.	12	0	.. 16	0	0	0	.. 0
Rhatany	0	2½	.. 0	3	0	2	0	white ..	5	0	.. 10	0	10	0	.. 15
Seneca	2	4	.. 2	6	1	9	1	POPPY, East India, per qr.	54	6	.. 0	0	43	0	.. 0
Snake	1	5	.. 1	6	0	0	0	SPICES.							
SAFFRON, Valencia ..	42	0	.. 45	0	35	0	44	CASSIA LIGNEA .. per cwt.	37	0	.. 45	0	40	0	.. 45
SALEP	100	0	.. 160	0	100	0	120	Vera	28	0	.. 32	0	28	0	.. 35
SARSAPARILLA, Lima per lb.	0	5	.. 0	6	0	4	0	Buds	49	0	.. 51	0	57	0	.. 68
Guayaquil	1	3	.. 1	5	1	1	1	CINNAMON, Ceylon:							
Honduras	1	2	.. 1	9	1	1	1	1st quality..... per lb.	1	1	.. 2	8	1	0	.. 3
Jamaica	1	4	.. 1	9	1	6	1	2nd do.	0	11	.. 2	0	0	11	.. 2
SASSAPARILLA..... per cwt.	3	0	.. 6	0	0	0	0	3rd do.	0	7	.. 1	5	0	8	.. 1
SCAMMONY, Virgin .. per lb.	30	0	.. 40	0	20	0	29	Tellicherry	0	0	.. 0	0	1	5	.. 1
second & ordinary ..	10	0	.. 25	0	8	0	18	Chips	0	1½	.. 0	4½	0	2½	.. 0
SENNA, Bombay	0	0½	.. 0	2	0	0½	0	CLOVES, Penang	2	0	.. 2	3½	1	11	.. 2
Tinnivelly	0	2½	.. 1	2	0	2	0	Amboyna	1	6	.. 1	7	1	5	.. 1
Alexandria	0	4	.. 2	6	0	3½	1	Zanzibar	1	2	.. 1	2½	1	4	.. 1
SPEARMACEITI, refined ..	1	3	.. 0	0	1	3	0	GINGER, Jam., fine per cwt.	100	0	.. 240	0	90	0	.. 180
American	1	0½	.. 1	1	0	1½	0	Ord. to good	45	0	.. 90	0	46	0	.. 80
SQUILLS	0	1	.. 0	2½	0	2	0	African	18	6	.. 0	0	18	0	.. 16
GUMS.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	Bengal	18	0	.. 18	6	16	0	.. 0
AMMONIAC drop .. per cwt.	1	10	.. 2	0	1	10	2	Malabar	0	0	.. 0	0	0	0	.. 0
ANIMI, fine washed ..	18	0	.. 20	0	14	0	15	Cochin	23	0	.. 105	0	29	0	.. 110
sorts	10	0	.. 15	10	9	10	11	PEPPER, Blk, Malabar, per lb.	0	4½	.. 0	5	0	3½	.. 0
ARABIC, pale picked ..	2	10	.. 3	0	3	0	3	Singapore	0	4½	.. 0	4½	0	3½	.. 0
sorts, md. to fin. ..	1	16	.. 2	0	1	18	2	White Tellicherry ..	0	0	.. 0	0	0	10	.. 1
TU-BEE, pick. gd. to fin.	6	10	.. 10	0	7	5	9	Cayenne	0	6	.. 1	6	1	0	.. 2
second & inf.	2	10	.. 5	10	3	10	6	MACE, 1st quality ..	1	1	.. 2	7	1	9	.. 3
sorts	2	6	.. 3	0	1	10	3	2nd and inferior ..	1	0	.. 1	6	1	0	.. 1
ASSAFETIDA, cm. to fin	0	12	.. 3	0	1	8	2	NUTMEGS, 7s to 60 to lb.	3	5	.. 4	6	3	8	.. 4
BENJAMIN, 1st & 2nd ..	10	0	.. 24	0	21	0	70	90 to 80 ..	3	0	.. 3	4	3	0	.. 3
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	132 to 95 ..	2	1	.. 2	11	1	11	.. 2
COPAL, Manila..... per cwt.	25	0	.. 53	0	17	0	30	PIMENTA	0	5½	.. 0	5½	0	5	.. 0
Angola, red	120	0	.. 135	0	65	0	120	VARIOUS PRODUCTS.							
DAMMAR, pale	90	0	.. 100	0	80	0	95	COCHINEAL—							
EUPHORBUM	0	0	.. 0	0	9	10	15	Honduras, black .. per lb.	0	0	.. 0	0	0	0	.. 0
GALBANUM	0	6	.. 1	2	0	0	0	" silver ..	0	0	.. 0	0	0	0	.. 0
GAMBOGE, pkd. pipe per cwt.	340	0	.. 380	0	230	0	255	Mexican, black ..	2	1	.. 2	2	2	3	.. 2
GUAIACUM	1	0	.. 3	2	1	0	2	" silver ..	2	0	.. 2	1	2	2	.. 0
KINO	75	0	.. 150	0	60	0	90	Teneriffe, black ..	1	10	.. 2	8	2	3	.. 2
KOWRIE, sorts	42	0	.. 58	0	40	0	60	" silver ..	2	1	.. 2	3	2	3	.. 2
selected	115	0	.. 200	0	110	0	180	SOAP, Castile..... per cwt.	30	0	.. 0	0	33	0	.. 34
MASTIC, picked .. per lb.	3	0	.. 4	6	2	6	3	SOY, China	2	0	.. 2	1	2	4	.. 0
MYRRH, gd. & fine per cwt.	290	0	.. 240	0	150	0	250	TERRA JAPONICA—							
ord. to fair	85	0	.. 165	0	67										



THE POLITICAL ATTITUDE OF THE TRADING CLASSES.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—“Nemesis” mistakes the main question at issue between us. It is not whether the upper classes do or do not make good legislators, but whether it is right and wise to make our political convictions subservient to our personal interests as tradesmen. I have occasionally seen the affirmative of this proposition assumed by correspondents in these columns, but usually in a manner vague, indirect, and indefinite.

They lacked the commendable candour with which “Nemesis” asserts the pre-eminence of trade interests, the necessity of consolidating our voting power for their benefit, and the duty of “harassing every government, no matter of what party concerned.” In my last I endeavoured to point out the falsity of the principle which underlies this advice, and I receive no manner of reply, except further abuse of the “social classes now in place and power,” and the remark that, “there is nothing new in my argument.” This I admit, and think it no objection, for I have not yet learnt that truth is necessarily a novelty.

I have no wish to “assume to defend the case” of the upper classes, having stronger sympathies with the one of which I am a member; but I did, and do, decline to join “Nemesis” in the frivolous employment of flinging mud at our present and past legislators. Chiefly, because I know that while the qualities of “knavery, tyranny, and hypocrisy” are to be found in every class (not excluding the one to which “Nemesis” and myself belong), yet they cannot be truly ascribed to any single or particular class; and also because I gratefully remember that most of the civil and religious liberty which we now possess has been fought for and obtained by those classes to whom these epithets have been applied.

I admit the frequent abuse of power by political parties. The recent action of the House of Lords in their rejection of a Bill which apparently threatened their interests is not an edifying spectacle. But if the page of history is sometimes dark with the selfishness and violence of the classes whom your correspondent so bitterly derides, it is also bright with the splendour of their noble achievements and their wise legislation. Political power is now to a great extent passing out of their hands. We stand in the dawn of a new political day. The trading and working classes by their greater power, by their increased knowledge and capacity, are beginning to have a strong and marked influence upon the legislation of the country.

The question that inevitably presents itself, and which “Nemesis” has thrust upon our notice, is, “Shall we use this power merely for the furtherance of our trade interests?”

Shall we not rather, while neglecting no legitimate means of pressing upon Government the necessity of the alteration or repeal of measures which unjustly and injuriously affect us, use this power for the furtherance of good government and the national welfare?

I am, sir, yours respectfully,

A. E. B.

Old Radford.

PHARMACEUTICAL SOCIETY v. THE LONDON AND PROVINCIAL SUPPLY ASSOCIATION (LIMITED).

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—The able review in the August CHEMIST AND DRUGGIST of the above case may still leave something material to be said.

It was clearly shown in the earlier of the four trials that the name of the defendant was a mere *nom de guerre* adopted by an individual grocer for the purpose of competing with his overwhelming opponents, the various great Crown servants' stores and the co-operative associations.

Nearly all the “shares” in the so-called London and Provincial Supply Association were in the hands of Mr. William Mackness and his nearest family relatives.

The plaintiffs knew this, ought to have known it, or might easily have known it before they took action.

The Pharmaceutical Society had witnessed and grumbled at the same dispensing being carried on by the gigantic associations above named for fifteen or twenty years before the defendant started it.

Then why was it worth while for the plaintiffs to fly at such very small game? The eagle among the dove-cots! eh?

Supposing that the pharmaceuticals had grabbed this morsel of prey, they could not suppose that the great Civil Service Stores and kindred institutions would have submitted to it.

Why, sir, the plaintiffs would have only tickled the tiger, who would soon have tackled them, not merely in the Lords, but in the Commons.

The defendant was, in fact, fighting the plaintiffs' own battle against the Crown servants' trading and co-operative stores.

But the policy of the plaintiffs was more mistaken still.

Whether in Parliament or in trade, the grocer is—or has hitherto been—the natural and nearest ally of the chemist.

Compare the evidence of 1874 (Blue Book, p. 262), on behalf of the grocer with that on behalf of the chemist.

In 1875 the promoters of the new Food and Drugs Act never saw a representative of the chemist in lobbies or galleries during the entire Session, and to this day the Pharmaceutical Society does not know how the most valuable protective Clause 22 in 38 and 39 Vict. c. 63 was carried against the most remarkable efforts and artifices of the analysts, who fed alike upon chemist and grocer.

Pity, is it not, sir, that such clever pharmaceuticals should not know their best friends?

Again, many clients of your journal are grocers as well as chemists, particularly in the West of England, and in Scotland and Ireland, yet more, some of the most eminent chemists have, through generations, vended tea, coffee, spices, arrowroot, and confectionaries, the staples of the grocers' trade proper; but, if it is to be Chemist v. Grocer, you know which will lie undermost.

Before the Pharmaceutical Society “went for” a grocer, they might have taken council with mutual friends, who had worked in harmony with the Society in 1874 and 1875, but they sought a scapegoat and caught a Tartar, while those who witnessed the pursuit looked on laughing with your humble and attentive servant,

11 Highbury Crescent, N.

R. M. HOLDORN.

September 3.

Do you think that the various great stores' folks are so mean and cowardly as to saddle the defendant with the costs of the battle which he has successfully fought out for them?

THE DRUGGIST'S PROSPECTS.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—In the announcement of the Transactions of the Pharmaceutical Society I read the following with regret:—“Benevolent Society.—Mr. Robbins gave notice of a motion to the effect that it should be an instruction to the Benevolent Fund Committee that special attention should be given to cases of persons who have either been themselves, or by their husbands or their fathers, connected with the Society.”

Are we to understand by this that no distressed registered chemist need apply for a grant? or are we to understand that after this motion has become law no registered chemist need tender their subscriptions to this laudable fund, and that the various local secretaries need no longer tout for subscriptions to a fund to exclude a body of registered chemists, quite as powerful as the pharmaceutical chemist, and quite as competent to carry on the mysteries of the profession?

The Benevolent Society have a large sum of money in hand, and have been very liberal with their grants; but I presume if the above motion becomes law the registered chemist will fight shy with subscriptions.

I see, also, in one of the pharmaceutical journals that the Benevolent Society granted, during the year 1879, to 31 annuitants, 1,015*l.* per annum, which is equal to about 32*l.* per head, and that casual relief was granted to the amount of 700*l.* I also observe that for the month of June the sum granted was 125*l.* to 12 persons. There is no doubt but that the benevolent fund is one of the greatest boons to the afflicted and distressed druggist, but if the Pharmaceutical Society determine that none shall have a chance of relief but one of their own body, then I say it is time that the registered chemist should look to himself, and see what is to be done. I would propose that a society should be formed, called “The Chemists and Druggists' Insurance Company,” and that for a small sum paid annually the insurer should be entitled to a certain sum on attaining the age of 50 or 60, and that in the event of his becoming distressed he should have a grant of 5*l.* or 10*l.*

It is an undeniable fact that, instead of the drug trade improving in a commercial point of view, it is almost in a state of insolvency, and soon there will not be required so many chemists in the country, and the great probability is that those that are already established and doing well do not hopefully look to retire on a competency which their education and their social position demand for them.

Now that grocers and stores are able to sell drugs and even dispense medicines at their own profits, the chemist sees nothing but starvation staring him in the face.

I am, &c.,

A CHEMIST.

5/129. *Bryonia*.—You can only register a new design; you can only patent a new principle. Roughly, that is the distinction. For full particulars of fees refer to our last year's Diary, page 81. No doubt the large manufacturers coat pills much more perfectly than the unpractised chemist and druggist can expect to do. We believe they moisten them with gelatine solution, and let them roll in a revolving pan at a slight heat in French chalk. Much depends on having them of a perfect consistence before the operation is commenced.

HOMOEOPATHIC DOSING.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—The opponents of homeopathy have never been conspicuous for their fealty to logic; but your correspondent “Physeter Macrocephalus”

is perfectly come in his disregard of the restraints thereof, so anxious is he to represent homœopathy as a "huge lie"!

His position is this. A physician, supposed to believe in his doctrine of homœopathy, prescribes empirically for a case of neuralgia—therefore homœopathy is a "huge lie."

First premiss.—A physician supposed to believe in homœopathy.

Second premiss.—An empirical bundle of prescriptions from the said physician.

Conclusion.—Homœopathy is a "huge lie"!

Apply the same mode of argument (!) to Christianity, and what would become of it! Christian ministers proclaim a variety of sound moral principles as the basis of conduct, but every now and again we hear of one being habitually drunk, another committing adultery, a third being convicted of forgery, and so on. Are we to infer that because these men do not practise what they preach that therefore what they preach is a huge lie?

If homœopathy were a huge lie, how comes it to pass that two-thirds of the most popular book on therapeutics—Sidney Ringer's Handbook—consists of "thunder" "stolen" from homœopathy?

Yours, &c.,

INGLETON.

SIR,—Under the above heading your correspondent "Macrocephalus" propounds the question—"Homœopathy is either a huge lie or a Divine truth," and he answers it by quoting six allopathic prescriptions, which he says were ordered by a "celebrated homœopathic physician at the West-end." This he very illogically considers to prove homœopathy to be a "huge lie." Logically he would have put it thus:—"The physician who calls himself a homœopath in order to attract patients, and, when they consult him prescribes allopathic remedies, is a 'huge liar.'"

To such a proposition no one could have objected; but to stigmatise a system of medicine as a "huge lie" because one of its nominal professors abandons its practice in a given case is as absurd as it would be to designate Christianity a "huge lie" because some man professing Christianity was convicted of breaking some one, or all, of the ten commandments.

Yours very truly,

WILLIAM BAYES, M.D.

21 Henrietta Street, Cavendish Square, W.

LATIN OR ENGLISH FOR THE PHARMACOPEIA.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—Now that the International Medical and Pharmaceutical Associations are likely to meet in London, perhaps the question of an International Pharmacopœia will come to the front. I am not very sanguine about it myself, but should like to see the formulæ of our next B.P. in Latin instead of English, and believe an English B.P. has led to more quackery than any other cause whatever.

The public have acquired from it a smattering of medicine, and mistakes have often been the consequence. Not only that, but patients often object to take medicines ordered by their medical attendants, and fancy they know more about drugs than the doctors themselves; and medical men are often puzzled to find a remedy that is not an official one, so that the patients may not object to the prescription. The views of medical men on this matter, I think, would be valuable at this time.

I remain, sir,

Yours respectfully,

G. B.

180/9. A. Z.—The only collection of formulæ of proprietary articles of recent date is that of Edward Hahn, in German. A translation of this has been appearing in our columns during the last two years.

CAUTIONS.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—I think it my duty to ask you to warn the trade through the medium of your paper against the action of a man named Graham, who is going about the country with a quantity of a preparation called "Dyer's Silvering Compound," put up in 1s. packets. This individual sold me three dozen of this preparation on the condition that he would advertise it in the local papers, with my name as agent. He has not done so, nor have I been asked for a single packet of the article. He also hands you a card, purporting to tell you the name and address of the maker as follows: J. W. Gray & Co., General Factors, Khyber Road, Clapham, S.W.

On writing to that address my letter was returned as a dead letter.

I am, yours faithfully,

A. HUGHES.

September 9, 1880.

SIR,—Allow me to warn my brother chemists against an assistant, George Roebuck, recently of Pilsley, and Clay Cross, Derbyshire. He replied to my advertisement in THE CHEMIST AND DRUGGIST of July, giving as reference Mr. J. Holland, chemist, of Clay Cross. I had not a Chemists' Register, hence addressed a letter to Mr. Holland stating that I

required a competent, steady, honest, and thoroughly reliable person to manage a branch business, and asked if George Roebuck was such a man. The reply stated that Mr. G. Roebuck had managed a branch business for him for two and a half years with the utmost satisfaction; that he had pleasure in speaking on his behalf. On this information I engaged him. We opened the shop on Friday afternoon; he was alone till Tuesday. When I went to the shop I found that with the receipts of Friday and Saturday he was drinking on Sunday. At two o'clock on Monday he went off with the receipts of the day and was seen in the evening very drunk. On Tuesday when I got to the shop and found out the state of affairs, I discharged him, and wrote to Mr. Holland complaining of the character to such a man, only to find that it was a forgery, and that there is not a chemist of that name in Clay Cross. He went off professedly to Liverpool.

I am, yours truly,

H. B. PARE.

PROFESSOR ATTFIELD AND THE FOUNDATION OF THE BRITISH PHARMACEUTICAL CONFERENCE.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—Professor Redwood's volume, "The Progress of Pharmacy," ed. 1880, has just come under our notice. The record of the establishment of the British Pharmaceutical Conference, as given at p. 316, is strangely wanting in one essential particular—viz., the part taken by Professor Attfield in that work.

It is not unreasonable to regard *all* who took part in convening or attending the meeting held at Newcastle-on-Tyne on September 2, 1863, as founders of the Conference. But if the question of pedigree be pushed back a stage further, we must state thus publicly (what we believe to be widely known already) that Professor Attfield was associated with us in the issue of the earliest circular on the subject, and we now add that each of us recognised Professor Attfield's adoption of the scheme as its one crucial point. We were convinced that if Professor Attfield took up the responsibilities of the office of senior Hon. Secretary, the new organisation would have secured the needful pivot which would be reliable for its movements in every direction. The testimonial just presented to Professor Attfield marks the sense of his fellow-members of the fidelity, energy, and ability with which his self-imposed duties have been performed during the long period of 17 years.

(Signed)

RICHARD REYNOLDS.

HENRY B. BRADY.

September, 1880.

THE PATENT MEDICINE TRADE.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—Without being accused of egotism, I think I may fairly assume that your humble servant is the person referred to by "Proprietor" in your last issue. "Proprietor" has exercised a wise discretion in not appending his name, taking into consideration that he so innocently confirms my advertised statement that no proprietor has ever assisted the chemist in preference to stores, grocers, &c., by making the consulatory announcement that proprietors have ought to do with retail prices. "Proprietor" modestly gives it forth, with all the force of an anonymous authority, that it is utterly impossible (and one or two other "utterly") to confine the sale of any article to chemists. That may be his opinion, but I meet his dogmatic assertion that I cannot do this with the reply that I can. My schoolmaster taught me that there was no such word as "can't." If I place my goods in the hands of wholesale houses doing with grocers, &c., they will supply grocers. Granted. This may be startling information, but (in confidence) I knew it before.

"Proprietor's" remedy of a lessened number of chemists and druggists would doubtless be satisfactory to the "lessened," but what about the squeezed-out ones? Perhaps, to quote a previous talented correspondent, they are to be "boiled down."

I am, sir, yours obediently,

FRED. J. BRETT.

THE SCHOOL OF PHARMACY OF THE FUTURE.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—All truly scientific pharmacists will feel grateful at the able letter of Mr. Postans in your last issue. The questions he opens up are of immense importance, more especially at the present time, when we are hearing vague rumours about changes in pharmaceutical education and examination.

A proposal has been made to enforce a curriculum on the pharmaceutical student who, at the end of his apprenticeship, finds himself obliged to still further spend both valuable time and money for the purpose of being crammed for a stringent examination to enable him to practise his profession. A recognised curriculum would, in a great measure, do away with this state of matters.

The system of cramming I have always considered unhealthy, but an examiner well up in the science of examination will soon distinguish between the student who has been crammed and one who has undergone a systematic training.

Considering the character of the pharmaceutical examination, and the scientific knowledge candidates of the present day are expected to possess

a curriculum is absolutely necessary to ensure the entrance of only scientific pharmacists into the profession. It must come, sooner or later—the sooner the better for pharmacy—and I hope the time is not far distant when we shall see the pharmaceutical student attending classes under recognised lecturers in the same manner as his brother medical student—for the two professions are only different members of the same family.

May I be allowed to correct one apparent error in Mr. Postans' letter. He seems to infer that none of the established schools of pharmacy are in a flourishing condition. I hope I may not be considered egotistical when I claim success for the Edinburgh school, which has hitherto been successful in every way, and promises to continue so. I attribute this success to the manner in which the teachers of that school set their faces against cramming, and, if this were done in every school, no matter where it be established, the desired end will be attained, and a better class of men will be induced to follow the profession.

I am, yours faithfully,

R. URQUHART,
Secretary to the Edinburgh School of Pharmacy.

September 7, 1880.

4/130. *Heinrich Schneider*.—This correspondent engaged a painter to paint his shop, and one of the painter's workmen accidentally broke two 8-gallon show carboys in the window. He asks is he (Schneider) or the painter responsible for the damage. We suppose there is no doubt that the painter is.

6/130. *Trego*.—Being registered as a dentist you can claim exemption from jury service.

THE BUOTT FUND.

Mr. Hampson asks us to acknowledge the following additional donations:—

	£	s.	d.
Alfred Bastin, Manchester	2	2	0
Wm. Matthews, 12 Wigmore Street, W. ..	1	1	0
Alfred Rose, 441 Edware Road, W. ..	0	5	0
Thomas Hulme, Pendleton	0	10	6
James Mackenzie, Edinburgh	0	10	0
Edward Hammerton, Colchester	0	10	0
F. B. Vizer, Brighton	0	10	0
B. W.	0	2	6
S. S. Beall, Cambridge	0	2	6
John Throssell, Cambridge	0	6	0
K., Cambridge	0	2	6
Alpha	0	10	0
J. Wellington, Fowey	0	5	0
R. M. Holborn, 11 Highbury Crescent, N. ..	1	1	0

125/62. *Nubian Blacking*.—Formulae for this have been advertised in our Exchange column, but have never been published.

127/58. *E. R. G.* would be glad of a good recipe for making ginger beer.

127/15. *F. D. (Smyrna)*.—*Marble* is polished by friction with sand or emery; coarse is used at first, and then finer as the surface improves. The final polish is given by putty powder or rotten stone.

129/34. *Inquirer*.—Acton's "Reproductive Organs" is a standard work.

129/6. *Ink for Indiarubber Stamps*.—*An Old Subscriber*.—We are often asked for a formula for these, but do not know one. We should be glad if any of our readers could supply the want.

125/72. *A. S.*—If the fly-papers really are useless you can poison them by steeping them in a weak arsenical solution and drying. Infusion of quassia is said to be effective, and is certainly safer.

129/8. *H. (Manchester)*.—You will find the information you require at the foot of page 408 in this number.

129/1. *Ignoramus*.—It is impossible to give a thick coating of silver by means of a solution. As soon as the first thin plating is formed, the process stops at once, and no more silver can be deposited. You can have it electroplated and as thick a coat of silver deposited on it as you like. Many different alloys are used for ornaments, and we cannot tell which yours is.

128/72. *Vapor Calami Aromatici*.—*Throat Hospital*.—Take oil of sweet flag, 16 minims; light carbonate of magnesia, 8 grains; water to 3 oz. One teaspoonful in a pint of water at 150° F. for each inhalation. It is a powerful stimulant, useful in cases of chronic congestion of the larynx when other stimulating inhalations have lost their effect.

47/129. *Diana*.—There is no law to prevent anyone describing himself as "analyst." We should say that anyone who sells spirit or liniment of chloroform sells chloroform, and anyone who sells red or white precipitate ointment sells red or white precipitate. We perceive the point, however. The Act names cantharides in the first part of the schedule, and in the second part says, "The tincture and all vesicating liquid preparations of cantharides." "What about blistering ointment, then?" asks our correspondent. We should be consistent; and say it belongs to Part I. of the schedule. For addresses, advertise in our Exchange column.

128/55. *S. E. R.*—Cooley gives the following formula for *Sarsaparilla Beer*, but we do not know if it is the kind you want:—

Sarsaparilla, sliced	1 lb.
Guaiacum bark, bruised, small	½ lb.
Guaiacum wood, rasped	2 oz.
Liquorice root, sliced	2 os.
Aniseed, bruised	1½ oz.
Mezereon root bark	1 oz.
Cloves, cut small	½ oz.
Moist sugar	8½ lbs.
Hot water (not boiling)	9 quarts

Mix in a clean stone jar, and keep it in a moderately warm room (shaking it twice or thrice daily) until active fermentation sets in; then let it repose for about a week, when it will be fit for use. No yeast must be used.

127/43. *Gas-stoves for Shops*.—*H. A. C.* writes:—"Will you kindly inform me in your next issue where I can obtain the best kind of gas-stove to warm a shop—free from smell, if possible?"

We should be glad if any chemists who have had experience in this matter will give us the benefit of it.

128/45. *S. S.*, Bristol, would be glad of a formula for American burnishing shoemakers' ink.

129/67. *Bicycle*.—The Pharmacy Act of 1868 does not extend to South Africa; but see our note on p. 368, col. 2, of our last issue.

Bicycle Cement for attaching indiarubber tires. Can any of our readers supply us with a formula? Carbon bisulphide is made by passing sulphur vapour over red-hot charcoal. It is a dangerous manufacture. The sulphide can be bought cheaply.

128/61. *Enquirer*.—*Malt Analysis*.—You will probably find what you want in Charles Piesse's "Chemistry in the Brewing-room; being the Substance of a Course of Lectures to Practical Brewers." Trübner, 1877. 5s.

Oddities.—*Mr. Lane* (Oamaru, New Zealand) sends specimens of orders received there, among which are "6d. McNesy," "golesrien," "smay bar," "Bosam capals," "alerpackerry," &c. An order sent us by Messrs. Johnston & Adams, Dundee, reads "Lapis to penyworth for clering ad to penyworth of oxale 2 peny of glasserin to 2 peny pckets of Blue to pence of confer."

Mr. E. G. Lane, of Oamaru, New Zealand, writes:—"Cannot you induce makers at home to manufacture our small weights from 5½ downwards of something better than brass, which so soon becomes tarnished that I find it quite a task to distinguish the smaller characters. What is wanted is something white with the characters stamped in black." We thought the weights could be bought in aluminium, which would answer our correspondent's requirements.

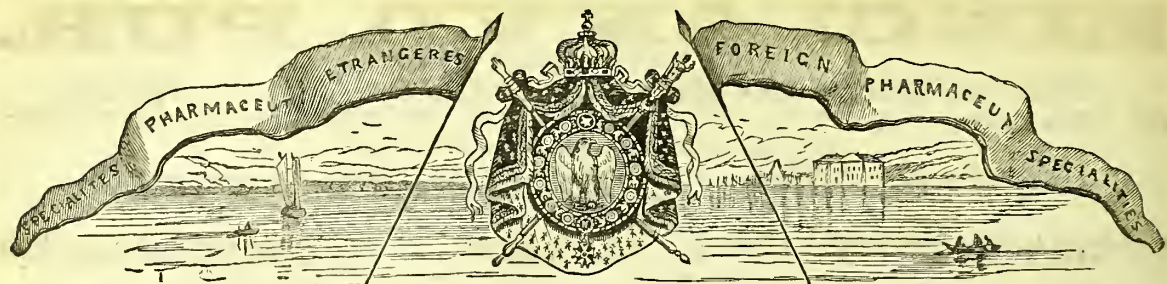
A C. & D. Diary Formula Wins a Gold Medal.—*Mr. David Clark*, Warwick, Queensland, writing on July 10, says:—"I beg to return my thanks for the information found in the pages of THE CHEMIST AND DRUGGIST, but especially in the Diary. I carried away first prize for eau de Cologne at the Sydney Exhibition, made principally from a recipe given in last year's Diary [1879]. I had to make some alterations necessitated by the spirit and essential oils I had at command. The spirit I used was grain spirit, and I never saw a finer eau de Cologne." Mr. Clark also took first prize for toilet vinegar.

4/129. *B. H. O.*—The Irish distillers term Scotch whisky "silent spirit," on account of it being free from any essential oil. Irish whisky is so distilled that it contains a good deal of fusel oil and flavouring ingredients from the grain.—We do not know how the crystallisation on the sprig of aniseed in the bottle of anisette is accomplished, but should think you are on the right track.—The formula for "essence of raspberry" in THE CHEMIST AND DRUGGIST, August, 1879, contains, as you surmise, an error. The first ingredient should be acetic acid, not acetic ether.—The following is a French formula for absinthe:—Leaves and tops of wormwood, 4 lb.; angelica root, calamus root, aniseed, and dittany leaves, of each 1 oz.; brandy or spirit (12 under proof), 4 gallons. Macerate 10 days, add 1 gal. water, and distil 4 gallons. In the distillate dissolve 2 lb. white sugar, and flavour with a few drops of oil of anise. You would find a good deal of useful information on the subject of liqueurs in No. 4 of Spon's Encyclopedia, price 2s. (E. & F. N. Spon, 46 Charing Cross.)

3/130. *J. Scott*.—The measures you ask about are manufactured by Mr. Toogood, of 37 Mount Street, Grosvenor Square, and probably by other makers.

IN NEW ORLEANS machinery has been set up to take water from the Mississippi and flush the streets of the city during the hot weather with the object of ensuring a more healthy condition. The engines are capable of pumping eight millions of gallons in 24 hours. The cost of the works was 9,000*l*.

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The following is a list of a few that they name *au hazard*, and that have a large sale:—

Retail	Per doz.	Retail	Per doz.	Retail	Per doz.	Retail	Per doz.
6/0..Alcool de Menthe Riebles	42/	4/6..Capsules Raquin	30/	2/9..Grimant's Syrups	22/	6/0..Rabuteau's Elixir Ferrug.	48/
2/9.. Ditto ditto	21/	4/6.. " Mathey Caylus	22/	2/3..Guyot's Gondron	17/	3/6.. " Sirop	27/
3/6..Auhergier's Syrup	27/	4/6..Chassaing's Wine	36/	11/..Laville's Gout Tincture	84/	4/0..Bacahout	33/
1/9.. " Pâte	13/	2/9.. " Pills	25/	11/.. " Pills	84/	5/0..Reynal's Bougies	42/
6/6..Bay Rum	54/	4/6..Clin's Bromide Camph. Caps	45/	2/3..Papier Fayard	13/	3/6..Ricord's Injection	24/
3/6.. Ditto	27/	4/6.. " " Dragées	45/	1/1 1/2 Ditto	6/6	4/6.. " Capsules	34/
2/0..Belloc's Charcoal	16/	2/9..Dusart's Syrups	27/	4/6..Papier Fruneau	27/	8/0.. " Syrup	72/; 42/; 26/
1/9.. " Lezenges	13/	4/6.. " Wines	36/	2/3.. Ditto	15/	2/0..Star Paper	15/
4/6..Blancard's Pills	30/	5/0..Eau Botot	42/	1/9..Pâté Aubergier	13/	2/9..Tamar Indien	21/
2/9.. Ditto	18/	3/0.. Ditto	26/	1/9.. " de Georgé	13/	2/9..Vallet's Pills	24/
4/6..Brou's Injection	24/	2/3..Espic's Cigarettes	15/	1/1 1/2 " Ditto	8/6	1/9.. Ditto	13/
4/6..Bugeaud's Wine	36/	2/9..Flon's Syrup	23/	1/9.. " de Berthé	15/	4/6..Veloutine (White and Rose)	39/
4/6..Bully's Vinegar	33/	2/6..Gayetty's Paper	18/	1/9.. " de Nafé	13/	3/6.. Ditto ditto	30/
2/6.. Ditto	17/	2/3..Granules Arsen. Acid	15/	1/9.. " Regnaud	13/	3/0..Vichot's Trochisques	27/
4/6..Candé's (Lait Antéphilique)	40/	2/3.. " Iron	15/	7/0..Pierlot's Valerian	54/	4/6..Valentine's Meat Juice	40/
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4/6.. " Matico	30/						

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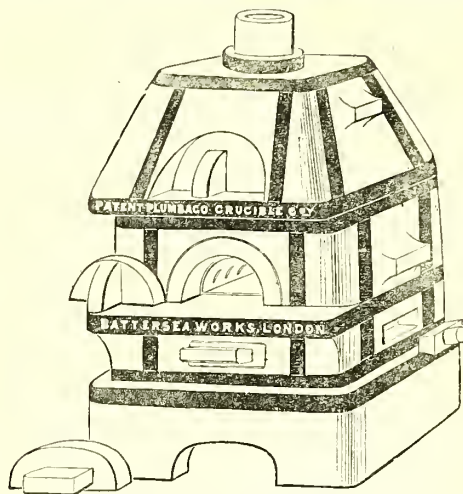
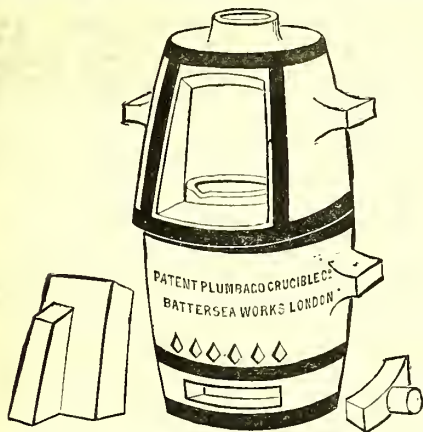
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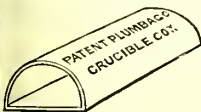
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E.	14½	28	" 12	3 0 0
F.	18	32	" 16	4 0 0

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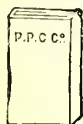
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Covers for either size, 6d. per doz.

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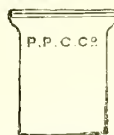
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3.	" Aloes et Ferri, P.B. ...	5/	4/	10.—	Pil. Conii Co., P.B. ...	8/	7/
4.	" Aloes et Myrrh, P.B. ...	12/	11/	11.	" Ferri Carb., P.B. ...	5/	4/
5.	" Aloes Socot., P.B. ...	6/6	5/6	12.	" Ferri Iodid., P.B. ...	8/	7/
6.	" Assafœtidæ Co., P.B. ...	6/	5/	13.	" Hydrarg., P.B. ...	5/	4/
7.	" Cambogiæ Co., P.B. ...	6/	5/	14.	" Hyd. Subchlor. Co., P.B. ...	6/6	5/6
8.	" Colocynth Co., P.B. ...	22/	21/	15.	" Ipecac. et Scillæ, P.B. ...	7/	6/
	Prepared with Virgin Scammony.			16.	" Plumbi Co. Opio, P.B. ...	12/	11/
	" Do. do. ...	13/	12/	17.	" Rhæi Co., P.B. ...	7/	6/
	Prepared with Resin Scammony.			18.	" Saponis Co., P.B. ...	12/	11/
9.—	Colocynth et Hyos., P.B. ...	20/	19/	19.	" Scillæ Co. ...	5/	4/
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	Ext. Aloes Aq. ... 3j.				P. Ipecac. P. Scillæ P. Capsici.	11/	10/
	Pulv. Cambog. ... 4 grs.			FORM O.—	Pil. Tussi., No. 3.		
	" Jalapæ ... 8 "				Pulv. Ipecac. Co. P. Gum. Ammon.		
	" Colocynth ... 6 "				Scillæ Sapo. Hyss.	7/	6/
	" Hydr. Subchlor. 4 "			FORM P.—	Pil. Tussi., No. 4.		
	" Sapo. Hyss. 4 "				P. Ipecac. Co. P. Gum. Ammon.		
	Gingerin ... 2 " Ft. Pil. xij.	6/	5/		Pulv. Scillæ Pulv. Sapo.		
	Each Pill contains Calomel $\frac{1}{3}$ gr.				Antim. Tart. Morphia Acet.	16/	15/
21.—	Pil. Aperiens, as No. 20, with 1 gr.			FORM Q.—	Castor Oil Pills.	5/	4/
	Calomel in each Pill ...	6/	5/		A Mild Aperient for Females.		
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117.—	Pil. Aperiens, No. 20, half size ...	7/	6/		Ext. Aloes Aquos P. Zingib.		
118.—	Pil. Aperiens, No. 21, half size ...	7/	6/		Ext. Taraxaci Sapo. Mollis.	6/	5/
257.—	Pil. Aperiens, Hospital.			FORM S.—	Pil. Anthem. Co.		
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	Pulv. Cambogiæ ... ss.				Aloes Socot. Ext. Anthem.	9/	8/
	" Jalapæ ... j.				Ol. Carui.		
	" Colocynth ... ss.			FORM T.—	Pil. Cochiae Co.		
	Hyd. Subchlor. ... ss.				Pulv. Aloes Cape. P. Cambogiæ.		
	Pulv. Saponis ... ss.				P. Jalapæ P. Sapo. P. Zingib.	5/	4/
	Ol. Ment. Pip. ... 1-16th.				Ol. Caryoph.		
	" Caryoph. ... $\frac{1}{8}$ Ft. Pil. j.	6/	5/	FORM U.—	Pil. Tonic.		
					Ferri Sulph. Ext. Gentian.	5/	4/
FORM I.—	Pil. Aperiens Fort.				Pulv. Zin. ib.		
	Same as No. 257, except that each			FORM V.—	Pil. Prandii, No. 1.		
	5 gr. Pill contains 1 gr. Calomel...	6/	5/		Ext. Aloes Aq. Ext. Gentian.		
FORM J.—	Pil. Aperiens Mit.				Ext. Anthem. P. Capsici.	9/	8/
	Same as above, omitting the Calomel	6/	5/	FORM W.—	Pil. Prandii, No. 2.		
FORM K.—	Pil. Antibilious.				Ext. Aloes Aquos.	7/	6/
	Pil. Hydr. Ext. Coloc. Co.				Pil. Rhæi Co. Ext. Gentian.		
	Ext. Hyosciami.	11/	10/	FORM X.—	Pil. pro Diarrhœa.		
FORM L.—	Pil. Antibil. c. Podophyl.				Acid. Tannic. Camphor.	9/	8/
	Pil. Rhæi Co. Ext. Hyosciami.				Capsicum Pulv. Opii.		
	Podophyllin gr. $\frac{1}{4}$ in each Pill.	11/	10/	FORM Y.—	Pil. pro Gout.		
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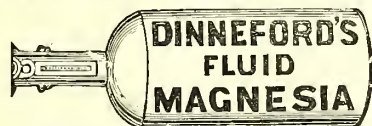
Shape	Size	Shape	Size
Square	4½ x 5½	Oblong	6½ x 11
Oval	5 x 7	"	7 x 13½
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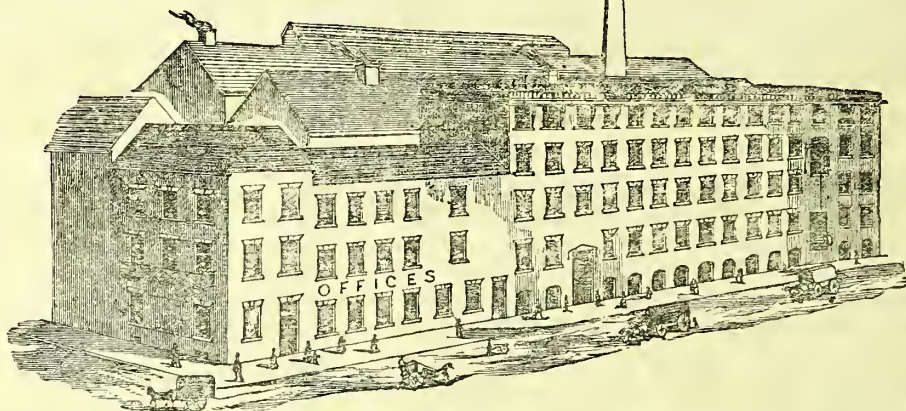
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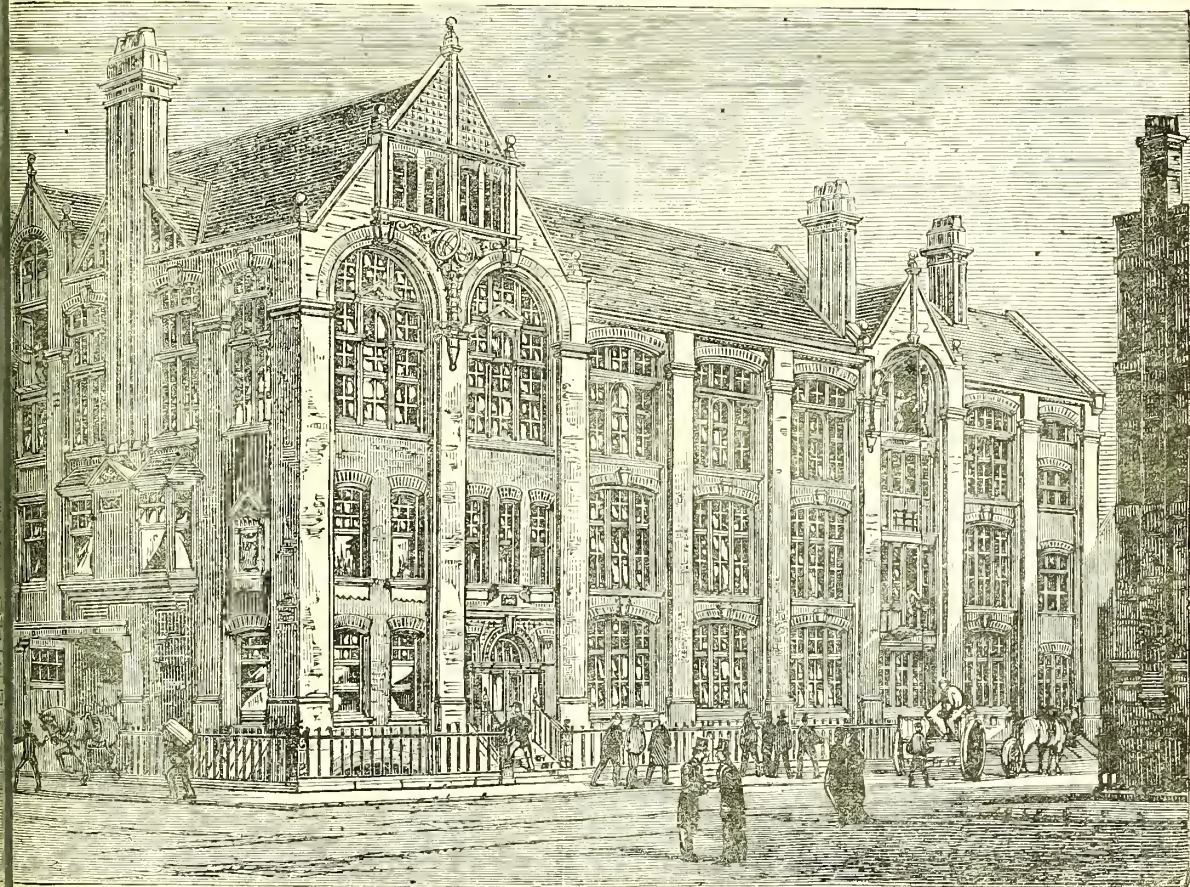


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CROTON CHLORAL	Shiny crystalline scales. (Powder form most objectionable)	Free from foreign chlorides.
GLYCERINE	S.G. 1260, double distilled, brilliantly white, odourless; also lower S.G. and qualities	Free from lime, chlorides, metals; will stand severest chemical tests.
IODINE	Resublimed, fine scales	Purest.
IODOFORM	Dry yellow scales	Purest, by medical reports.
POTASS, BROMIDE	Fine white dry regular crystals	Perfectly free from iodide, and the most free from chloride.
„ CAUSTIC	Lump and stick, white	Commercially pure, and pure by alcohol.
„ CYANIDE	Ditto ditto	30%, 45%, 60%, and 95%.
„ PERMANGANATE	Large and small crystals	Chemically pure.
„ IODIDE	Fine white dry regular crystals	Apply Barytic and other tests. This will never change colour.
SILVER, NITRATE	Fine large crystals	63 to 63½% pure silver.
SODA, CAUSTIC	Lump and stick, white	Chemically pure, and pure by alcohol.
SODA SALICYLATE, and other Salicylates	White powder and crystals	Freely soluble in water and alcohol.

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MANUFACTURER OF

ERGOTINE, pure Dialysed ...	Brown colloid, purified by Dialysis	Free from all saline matter present in the ordinary Ergotine and extracts.
FERRUM OXYD. (5% Dialysed)	Transparent brown liquid, purified by Dialysis	Free from all saline matter. Diluted by ten times its weight of water, will stand the test of Nitrate of Silver.
PEPSIN PORCI (100%)	White, sweet, odourless powder ...	Freely soluble in water, not hygroscopic, and will not deteriorate; will dissolve (by Wittstein's test) 100 parts of white of egg and 250 parts of fibrine.

GUSTAV RHODIUS, of Burg Brohl.

MANUFACTURER OF

POTASS, BICARBONATE ...	White powder and crystals	Dissolves bright in water.
SODA, BICARBONATE	Purest white powder, taste neutral, speciality for Soda powder	See tests P.B.
SODA, CARB. (purest)	Dry, for pure Soda Salts	Indifferent to Nitrate of Silver and Chloride of Barium.

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From Dr. GARROD, Physician to King's College Hospital. 63 Harley Street, March 30, 1850.
 DEAR SIR.—I have delayed writing to you, not having had until lately an opportunity of testing your preparations of Senna and Rhubarb. From what I have now seen of their action, and also of their taste, etc., I consider them very valuable preparations of the Drugs, and well worthy the attention of the Medical Profession. The Essence of Senna appears admirably adapted for children. I am, dear Sir, yours very truly,
 Mr. H. A. THOMPSON. A. B. GARROD, M.D.

From the late Dr. GOLDING BIRD, F.R.S., Professor of Materia Medica, and Assistant Physician to Gny's Hospital.

Myddelton Square, February 17, 1850.
 DEAR SIR.—I have tried your preparations of Rhubarb and Senna, and do not hesitate to say that they appear to act very efficiently, and to possess in a small bulk all the active properties of the respective drugs. I am accustomed to recommend the preparation of Senna for use in the nurseries of my patients, as a most efficient and valuable laxative for children. Truly yours,
 Mr. H. A. THOMPSON. GOLDING BIRD.

From Dr. SEMPLE, Member of the Court of Examiners of the Society of Apothecaries.

(Extract from a Letter). Torrington Square, February 13, 1850.
 With regard to your Essences of Senna and Rhubarb, I am most happy to say that I have tried them both upon several occasions, especially with children, and with the best effects; they form most agreeable and efficient preparations, and I shall be most happy to recommend them whenever I have an opportunity. Believe me to remain, dear Sir, yours truly,
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To the Editor of "The Medical Circular."

SIR.—In reply to the query in "Provincial's" letter, I may be allowed to say, that for some time past I have been in the habit of using the most happy effect a Liq. Secale Cornut., prepared by Mr. Henry Ayscough Thompson, Worship Street, Finsbury Square, a most elegant and efficacious preparation, one minim of which contain the active principles of one grain of secale. Should I be called on to attend a patient in parturition, who has been previously subject to hæmorrhage "post expulsionem fœti," or should I suspect hæmorrhage from a tonic contraction of the uterus, I invariably give one drachm of the liq. secale in a little cold water, about ten minutes before I think the fœtus will be expelled. Uterine contraction is produced; the placenta is expelled, and all hæmorrhage checked. I am, etc.,
 Darlington, November 30, 1854. THOS. H. JACKSON, M.D.

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See pages 33, 34.



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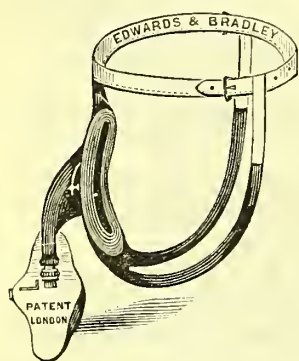
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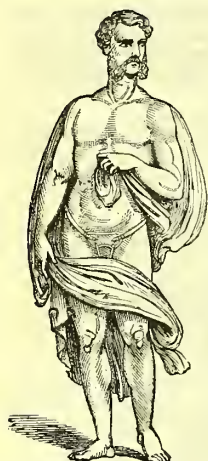
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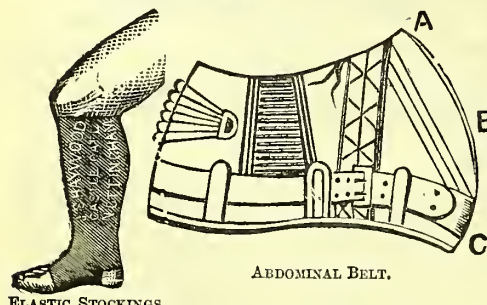
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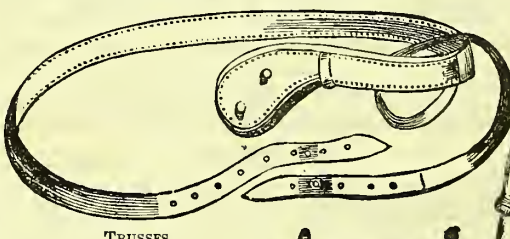
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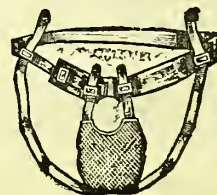


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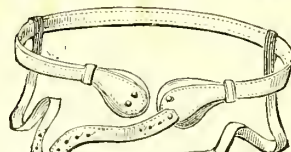
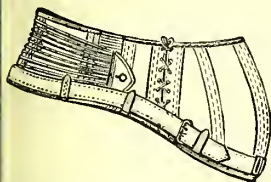


FIG. 4. Common Double.

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Ditto ditto Basil and Moleskin ... " " " " " " " "	1 18 0	Ditto ditto Basil and Moleskin ... " " " " " " " "	1 4 0
Ditto ditto Roan and Skiver, Silk Sewn ... " " " " " " " "	2 8 0	Ditto ditto Basil and Chamois ... " (Fig. 4), double	1 10 0
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Ditto ditto Basil and Moleskin ... " " " " " " " "	3 16 0	Scrotal Trusses, Basil and Chamois or Moleskin ... " each, single	0 3 0
Ditto ditto Roan and Skiver, Silk Sewn ... " " " " " " " "	4 16 0	Ditto ditto ... " " " " " " " " double	0 7 0

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Manufacturers of the Oxford Suspender on Scientific Principles,
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<i>The following Suspenders are specially adapted for Riding and Hunting, Bicycle Riders, and Warm Climates. The Bag can be raised or lowered by Buttons, &c.</i>			
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No. 7. Ditto ditto ditto with Silk Elastic ..		This is specially adapted for India, &c., &c. It gives great support, and is very light in weight (under 1 oz.).	
Understraps to button on Band	25/0 "		

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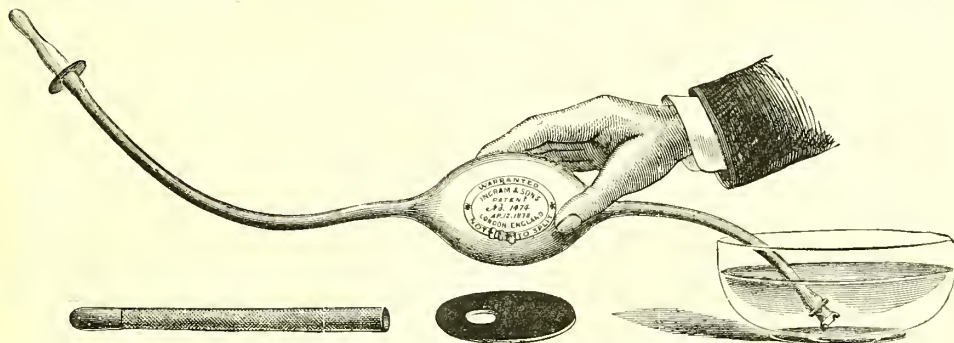
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Will always give Instant Relief in RHEUMATISM, NEURALGIA, GOUT, SCIATICA, LUMBAGO, NERVOUS and SICK HEADACHES, and like Disorders,

And will effect a cure in a very short time. In chronic cases of many years' standing it has, when taken regularly effected a complete cure, even in persons of advanced age, when the case had been pronounced hopeless.

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"Although I have, as a rule, a very great objection to all secret nostrums, still, for once, I must award due praise to medicine which comes under that category. I find your TIC-SANO to be a very valuable remedy in Neuralgia and Rheumatic pains. I also find it most successful in many painful Menstrual disorders, especially in Dysmenorrhœa. I quite agree with Dr. Pease that you will ere long make known to the medical profession the formula, &c."

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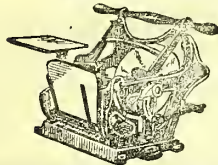
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GLASS MEASURES, GRADUATED AS ABOVE, BUT OF EXTRA WEIGHT AND SUPERIOR QUALITY												21/	24/	26/	33/	36/	54/ doz

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Dr. J. COLLIS BROWNE'S CHLORODYNE.

THE ORIGINAL AND ONLY GENUINE.

IMPORTANT CAUTIONS

From Lord Chancellor SELBORNE, Vice-Chancellor Sir W. PAGE WOOD,
and the LORDS JUSTICES OF APPEAL.

VICE-CHANCELLOR SIR W. PAGE WOOD, by whom the suit in Chancery was first heard, stated in his judgment that 'Dr. J. Collis Browne was undoubtedly the Inventor of Chlorodyne, that the whole story of the Defendant Freeman was as deliberately untrue as the falsehood he had deposed to with reference to the use of his Chlorodyne in the Hospital.'

The VICE-CHANCELLOR also stated, 'that Chlorodyne was a fanciful name, and had application been made sooner, the Court would have given Dr. Browne protection.'

LORD CHANCELLOR SELBORNE coincided with the judgment of the Vice-Chancellor upon this point, and stated 'that had application been made at a proper time and place, the Court would have found means to restrain the Defendant from misrepresenting the decision of the Vice-Chancellor.'

LORD JUSTICE JAMES, on appeal, stated in his judgment, 'that the Defendant Freeman had made a deliberate misrepresentation of the decision of Vice-Chancellor Wood.'

It was proved in Court, on affidavit by Mrs. Forbes, of Paris, that the testimonial published in the *Times*, November 14th, 1865, speaking of the great efficacy of Chlorodyne in Cholera, referred to Dr. J. Collis Browne's Chlorodyne, and that she never used any other, that she had written to the Defendant Freeman to that effect; notwithstanding which notice the Defendant publishes the said testimonial as referring to his medicine.

The Editor of the *Medical Times*, in his report on Chlorodyne, January 13th, 1866, gives information that the Chlorodyne referred to was the medicine introduced by a retired Army Medical Officer, which was Dr. J. Collis Browne; still this is published by the Defendant as testimony to his medicine.

Numerous affidavits from eminent Physicians and others were produced in Court, stating that Dr. J. Collis Browne was the inventor of Chlorodyne, and that when prescribing they mean no other.

The Defendant himself publishes that his compound is in effect and composition quite different to any other preparation; nevertheless he assumes the name, testimonials, &c., of Chlorodyne.

Technicalities in law prevent that protection which the public should justly have against such a course of conduct. It is now incumbent on all who purchase Chlorodyne to see that the name, 'Dr. J. Collis Browne's Chlorodyne,' is engraved on the Government Stamp, as it is not sold otherwise. All other compounds under the name of Chlorodyne are spurious. All attempts at analysis have failed; hence the statement that the constituents of Chlorodyne are known is a misrepresentation.

From SYMES & Co., Pharmaceutical Chemists, Medical Hall, Simla,
January 5, 1880.

To J. T. DAVENPORT, Esq., 33 Great Russell Street, Bloomsbury, London.

DEAR SIR,—Have the goodness to furnish us with your best quotations for Dr. J. Collis Browne's Chlorodyne, as, being large buyers, we would much prefer doing business with you direct than through the wholesale houses. We embrace this opportunity of congratulating you upon the wide-spread reputation this justly-esteemed medicine has earned for itself, not only in Hindostan, but all over the East. As a remedy of general utility, we much question whether a better is imported into the country, and we shall be glad to hear of its finding a place in every Anglo-Indian home. The other brands, we are happy to say, are now relegated to the native bazaars, and, judging from their sale, we fancy their sojourn there will be but evanescent. We could multiply instances *ad infinitum* of the extraordinary efficacy of Dr. Collis Browne's Chlorodyne in Diarrhoea and Dysentery, Spasms, Cramps, Neuralgia, the Vomiting of Pregnancy, and as a general sedative, that have occurred under our personal observation during many years. In Choleraic Diarrhoea, and even in the more terrible forms of Cholera itself, we have witnessed its surprisingly controlling power. We have never used any other form of this medicine than Collis Browne's, from a firm conviction that it is decidedly the best, and also from a sense of duty we owe to the profession and the public, as we are of opinion that the substitution of any other than Collis Browne's is a deliberate breach of faith on the part of the chemist to prescriber and patient alike.

We are, Sir, faithfully yours,

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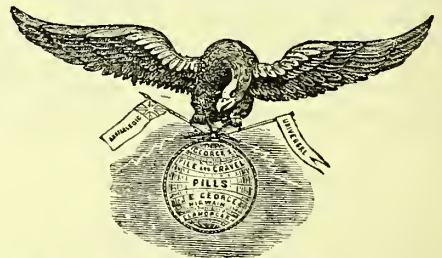
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Either of these is most efficacious for the cure of the numerous maladies resulting from Indigestion, Dyspepsia, &c.

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Professor of Chemistry, late of the Royal Polytechnic Institution.

Berners College of Experimental Science and School of Classical and Technical Education, 44 Berners Street, W., August 20th, 1880.

To the CONSOLIDATED FOOD CO.—Gentlemen, I have carefully examined and analysed the "Valentia" Food prepared by you. 100 parts contain:—

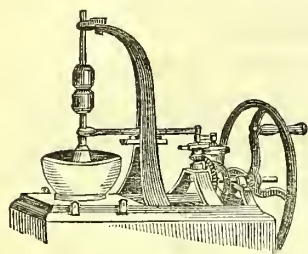
Moisture	100.00
Soluble Nitrogenous Organic matter, viz., Gluten, Legumen, and Starchy matters, &c.	33.00
Other Nitrogenous Organic substances, viz., Albumen, Fibrine, &c.	54.60
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Traces of Soluble Silica	100.00

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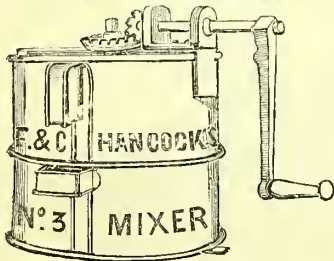
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Agents appointed, where unrepresented, throughout the United Kingdom. Prospectus and samples free on application.

Warehouses—154 and 155 Whitechapel Road, London.
P.O.O. payable at Head Office. Bankers—The National Provincial Bank of England.

F. & C. HANCOCK'S PATENT POWDER MIXING MACHINES.



The mixing is accomplished by revolving discs, and is the only machine that can blend light and heavy powders in equal proportions, grinding coagulated powders in the act of mixing, dispensing with use of sieve or mortar. Is light to work, strong, and durable, and half the price of any other mixer of equal capacity. These machines are made for hand and steam power.

No. 1.—To mix from one to six pounds..	Price £1 0 0
No. 2.—To mix from one to sixteen pounds	£1 10 0
No. 3.—Works with a crank handle, and will mix from one to thirty pounds of powders at one operation. This machine is much liked both by Chemists and Grocers, and can be worked by a boy	£3 0 0
No. 4.—Also works with a crank handle, and will mix 100 pounds of powders at one operation	£6 10 0

To F. & C. HANCOCK, Engineers, Dudley.—Gentlemen,—I can testify to the utility of your Mixing Machine in a Chemist's shop. Having a large quantity of baking powder to put up, I find the compound more uniform, and the work done in one-sixth the time by your No. 4 Mixer, which I have had in constant use for the last ten months.—Yours respectfully, J. HAY, Chemist, Low-Onsegate, York, July, 1880.

ILLUSTRATED SHEET SENT ON APPLICATION.

F. & C. HANCOCK, Engineers, Dudley, Worcestershire, Sole Makers,

NOTE.—Be careful to see that the words F. & C. HANCOCK are stamped on every Machine.

THE

'DESIDERATUM' MIXING MACHINE.

BRACHER'S PATENT.

RECENT TESTIMONIALS.

From Martin, Shields & Co., 35 Mark Lane, E.C., Thames Tunnel Rice Mill, Wapping, E. June 18, 1880.—I can confidently say that for mixing powders your "Desideratum" is very simple in action, and the result quite satisfactory.—Yours truly, J. W. C. MARTIN.

Sheffield, June 28, 1880.—Your "Desideratum" Mixer is proving a great saving of time to us for mixing Baking Powder, and does its work perfectly.—Yours truly, MART, CHAPMAN & CO.

27 High Street, Wisbech, June 30, 1880.—Gentlemen,—I have pleasure in informing you after using your "Desideratum" Mixer for about six months, that I look upon it as a most useful invention. It mixes Baking Powder with considerably less work than anything else I have seen, doing its work thoroughly and satisfactorily.—I am, Gentlemen, yours respectfully, B. J. WEBB.

Lancaster, July 1, 1880.—Sir,—Mr. Barrow has had your "Desideratum" Mixer in use for some months; the secret of the success of your machine is, all the substances required to be used are thoroughly blended, which is a *sine qua non*.

College Street, and St. Peter's Wharf, Ipswich, July 5, 1880.—Dear Sir,—We have used your Mixer for 12 months, and find it a very useful Machine, besides mixing powders, &c., well, it saves an immense amount of labour and time.—Yours truly BURTON & SON.

Nos. I. to IVa.

2 Francis Street and 11 Caroline Street, Hull, July 8, 1880.—Dear Sir,—The Mixing Machine I got from you does its work thoroughly; I am pleased with it.—Yours truly, T. CHAPMAN.
16 Market Square, Aylesbury, July 10, 1880.—Dear Sir,—In reply to yours of the 7th, I beg to say that I have used your "Desideratum" Mixing Machine, and find it works most admirably. It thoroughly mixes, and prevents dust and dirt, and is a great "saver of time"—a great consideration where much business has to be done.—I am, dear sir, yours faithfully, J. TURNER.
Nova Scotia, Blackburn, July 13, 1880.—Gentlemen,—In answer to your inquiry, I have had now in almost daily use the "Desideratum" Mixer I bought from you upwards of six months ago. I may say that I find the said Mixer pleases me and answers my work well; in fact I sometimes fancy I could not possibly do without one of these Machines.—I remain, yours &c., W. BUTTERFIELD.

Cheap Street, Sherborne, July 26, 1880.—Sir,—The "Desideratum" Mixing Machine I had of you some months since is a "Capital Invention," and no Chemist would be without one if he only knew its value. Being tightly covered, the powder cannot escape; it is simple in its use, easy to clean, and a great saving of time.—Yours respectfully, JOHN H. DALWOOD.

Totton, Southampton, July 24, 1880.—Dear Sir,—I find your "Desideratum" Mixing Machine very useful for mixing Powders, and is a saving both of time and labour. I have pleasure in recommending it.—Yours truly, J. B. FLETCHER.

6 Gwyn Street, Bedford, August 5, 1880.—Dear Sir,—I have had your "Desideratum" Mixer in use for some time, and find it answer my expectations fully. I recommend it to all in need of such a Machine.—Yours respectfully, F. W. CRICK.

Orwell House, Dovercourt, and 31 Tavern Street, Ipswich, August 9, 1880.—Gentlemen,—I am much pleased with the Mixing Machine I bought of you some few months since. It does its work thoroughly, and effects a considerable saving in time.—Yours truly, MARTIN D. KING.

Nos. I. to IVa.

Nos. V. and VI.

N.B.—Mixers Nos. 5 and 6 are now supplied with Fly-wheels, and the Sieves are of much improved construction.

FURTHER PARTICULARS ON APPLICATION TO THE MANUFACTURERS,

P. H. BRACHER & CO., 77 High Street, WINCANTON.



MAWER'S TARAXACUM OR DANDELION COFFEE

Prepared from the Fresh Root,
IN TINS, 6d., 9d., 1s., 1s 6d., and 2s.,
Is by far the best in the market. Excellent in quality, neatly packed, cheap and economical, and a very saleable article. Beware of worthless imitations.

A LARGE BUYER writes:—"Our customers ask for Mawer Taraxacum, and will have no other, and we are doing well with it."

A NOBLE EARL, the oldest in the House of Peers, sends the following message:—"Present my compliments to Mr. Mawer, and tell him like his Taraxacum, and that it agrees with me very well; and request him to send the usual number of tins."

Terms and Price Lists on application to the Manufacturer—

EDWARD MAWER

Chemist,
HIGH WYCOMBE, BUCKS.

Handbills and Show Cards supplied gratis.

Sold by Chemists everywhere.

E. LAZENBY & SON (6 EDWARDS STREET, PORTMAN SQUARE.) Sole Proprietors of the Celebrated Receipts and Manufacturers of the Pickles, Sauces and Condiments so long and favourably distinguished by their name, beg to remind the public that their labels are affixed to the choicest description of goods only, that every article prepared by them is guaranteed as entirely unadulterated and may be obtained of Grocers, Italian Warehousemen and others.

HARVEY'S SAUCE.—CAUTION.—The admirers of this Celebrated Sauce are particularly requested to observe that each bottle bears the well-known label signed "ELIZABETH LAZENBY"; this label is protected by perpetual injunction in Chancery of the 9th July 1838 and without it none can be genuine.

18 TRINITY STREET, LONDON. S.E.

Elizabeth Lazenby

PEPSINE SAUCE.

Specially suited for sale by Chemists, and a preparation which they can confidently recommend as superior both in flavour and virtue to all other sauces.

Sole Maker—J. LORIMER, Manufacturing Chemist
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ESTABLISHED 1760.

Contains three times the strength of ordinary Breakfast Beverages.

ONCE TRIED ALWAYS USED.

The valuable properties of the Dandelion Root, recognised by eminent Physicians for many centuries, has now become an article of daily use.

Sold by all Chemists throughout the Kingdom in Tins at 1s. 6d. 1s., 9d., and 6d.—*Price Lists on application to the Manufacturers,*

PHILLIPS & SON
CASTLE SQUARE, SWANSEA,
AND ARTHUR STREET WEST, LONDON BRIDGE

JAS. WOOLLEY, SON & CO., Manchester. OR OF EVANS, SONS & CO., Liverpool, &c.
W. MATHER, Export Agent, London. MAW, SON & THOMPSON, Aldersgate Street, London.
CLARKE & McMULLAN, Belfast. BURGOYNE, BURBIDGES & CYRIAC, 16 Coleman Street
GOODALL, BACKHOUSE & CO., Leeds.
McMAISTER & HODGSON, Dublin.

BARCLAY & SONS, Farringdon Street.
COLONIAL AGENTS.—Melbourne, Adelaide, and Sydney—P. T. FALK; BLYTH & CO. New Zealand, Nelson, Canterbury, Auckland—A. SCLANDERS & CO.; E. & J. ISAACS. Adelaide—F. H. FAULDING & CO. Cape, Algoa Bay, East London—L. DREYFUS.

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JOHN MACKAY'S CELEBRATED QUINTESSENCES,

From Spices, Fruits, and Vegetables, in general use for flavouring Jellies, Puddings, Creams, Ices, Biscuits, Cakes, &c., &c.

USED IN HER MAJESTY'S HOUSEHOLD.

JOHN MACKAY'S ARTIFICIAL GERMAN YEAST POWDER,

For BAKING BREAD, PASTRY, CURRANT CAKE, &c., without Fermentation, 6d., 1s., and 2s. per Bottle.

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JOHN MACKAY'S GELATINE OR PURE EXTRACT OF CALVES' FEET,

For producing a Brilliant and Nutritious Jelly for Table or Invalid use.

JOHN MACKAY'S CUSTARD CREAM POWDER,

For the production of CUSTARD CREAM without the use of *Eggs* or *Isinglass*. To be had flavoured with *Vanilla*, *Nutmegs*, *Cinnamon*, *Almonds*, or *Lemon*.

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The above Manufactured, with all the Newest Steam Appliances, by

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Is the best selling Cachou in the Market. It is put up in neat Cardboard and Novel Wood Boxes, to retail 2d., 6d., and 1s., in 1s. bottles, and in bulk.

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DELECTABLE JUJUBES, VOICE JUJUBES,

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MEDICATED AND HIGH-CLASS LOZENGES,

LIME FRUIT TABLETS, EVERTON TOFFEE,

ACID DROPS, and Best Quality BOILED SUGARS of every kind.

FRAGRANT BOUQUET LOZENGES, 300 in an ounce, have an immense sale.

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SUGAR WORM CAKES; keep in any climate; suitable for either Children or Adults.

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NESTLE'S MILK FOOD,

For Infants, Children, and Invalids.
London Depot—7 BARBICAN, E.C.

NESTLE'S MILK FOOD is prepared at Vevey, Switzerland, from the pure milk of Alpine fed cows, the finest wheaten flour and sugar, combined in exact proportions to imitate closely the natural food for infants. It is thoroughly cooked, and reduced to a fine powder, perfectly soluble in water, requires only the simple addition of water to prepare it for use—in this respect having the advantage over all other foods.

NESTLE'S MILK FOOD is highly recommended by the best medical authorities in all parts of the globe as a perfect diet. Nestle's is the original and genuine Milk Food or Powder.

NESTLE'S MILK FOOD is put up in tins, packed in lined cases specially for the export trade. Is highly concentrated and in a perfectly dry state. Will keep good in any climate.

Our Wholesale Agents at any port will pack and ship the Food to or for any part of the world.

Wholesale Depot: HENRI NESTLE, 7 BARBICAN, LONDON.

Details of In-
junction granted
by V.-C. MALINS
will be found in
"Chemist and
Druggist," Feb-
ruary 15, 1877,
page 76.



Wholesale Price
Lists, Opinions
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NELSON'S PURE BEEF TEA.

SOLD IN HALF-PINT PACKETS.

THE LANCET says:—"This is an ingenious and excellent preparation. It dissolves readily in warm water, keeps for an indefinite length of time, and is very portable. Its flavour is all that could be desired. The article includes not only those constituents of the meat which are soluble in hot or cold water, but also much of the fibrin and the whole of the albumen."

THE MEDICAL PRESS says:—"It is one of the best articles of the class we have ever examined."

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Each packet bears the
Signature—

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NELSON'S SOUPS.

Beef with Peas and Vegetables.

SOLD IN 1½ PINT PACKETS.

Miss Mary Hooper, Authoress of "Little Dinners," says:—

"I have tried your Beef Tea and Soup, and have found them excellent; indeed, in my opinion, they are by far the best things of the kind ever before the public. The Soup is excellent in flavour, and is good nourishment. It is very nice, and is most useful for strengthening and flavouring household soup or broth. It is, besides, so cheap that it cannot fail to be appreciated by all classes of the community, and it will be of great use to charitable people, as it will enable them readily to supply, at a small cost, a good, warm, nourishing meal."

"CRYSTAL PALACE, SYDENHAM, Dec. 1st, 1879.

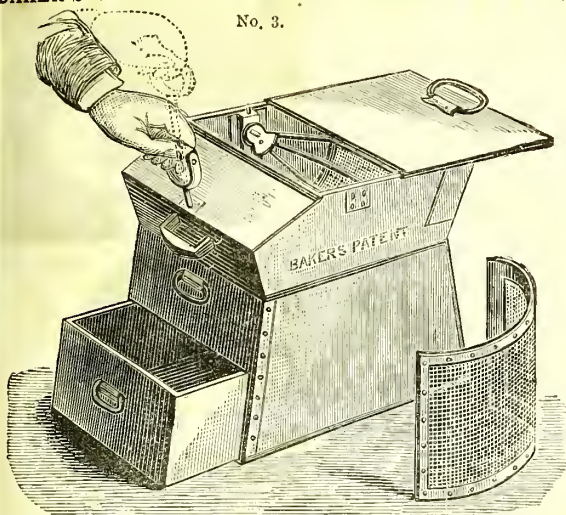
Samples and Prices on application to the Manufacturers,

GEORGE NELSON, DALE & CO.,

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BAKER'S PATENT SIFTING AND MIXING MACHINES.

No. 3.



No. 3.—This machine mixes from 14 to 28 lbs. at a time, and is provided with two drawers holding 30 lbs. each; several cwt. can be mixed and sifted in a short time when required; it is equally convenient for small quantities. This size is well adapted for wholesale and large retail dealers, and is highly recommended.

The introduction of these inventions having already been attended with a sale of about 10,000 machines among Chemists and Druggists and Manufacturers in the United Kingdom and abroad renders further testimonials to their superiority over any other "Mixers" unnecessary. They are the only machines which combine the advantage of the *finest sieves* with those of a *perfect mixer*. For rapidity of action and the entire avoidance of waste and dust in the operation they stand unrivalled. The machines are provided with seven different meshes of sieves, from which a selection of four is *usually* made, forming the "ordinary set." The finer sieves are used for Camphorated Chalk, Violet Powders, Aromatic Powders, Gregory, Tooth Powders, Dover's Powders, and all finest compounds, while the medium and coarser sieves are used for Seidlitz, Lemon Kali, Sherbet, Baking Powders, Curry Powders, Pill Powders, Horse and Cattle Mixtures, preparing Tinctures, &c. The sieves can be instantly changed for other meshes, and the whole machine taken apart for cleaning.

SOLE AGENTS FOR MORTON'S PATENT LIQUID MIXER.

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FRY'S COCOA EXTRACT,

IN PACKETS AND TINS.

Pure Cocoa only, with the superfluous oil extracted.

It is strongly recommended to all who appreciate the full flavour and fine aroma of Cocoa.

"It is strictly pure, and well manufactured in every way."—W. W. STODDART, F.L.C., F.C.S., *City Analyst, Bristol*.

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J. S. FRY & SONS, BRISTOL & LONDON.

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FRY'S CARACAS COCOA.—"A delicious preparation."

A CUP OF DELICIOUS
INVIGORATING COFFEE
IN PERFECTION, by using

SYMINGTON'S ESSENCE OF COFFEE,

OR ESSENCE OF COFFEE AND CHICORY.

These Preparations are specially recommended as Unique, Wholesome, and Economic Dietetic Beverages, possessing rich Coffee aroma, but free from the TREACLY TASTE and BURNED FLAVOUR always complained of in other such Essences.

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THOS. SYMINGTON & CO., Chemists,
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HENRI'S TARAXACUM, OR DANDELION COFFEE.

Is the Best. In Tins only.

HENRI'S HOMŒOPATHIC TEA.

The only Homœopathic Tea
in Packets.

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The only Homœopathic Coffee
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HENRI'S HOMŒOPATHIC COCOA

A PURE EXTRACT of COCOA.

The only TRUE Homœopathic Cocoa.

NO FAT. NO STARCH. NO SUGAR.
In Tins.

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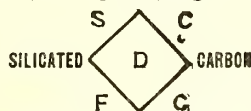
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MUSTARD.**FINCH, RICKMAN & CO.'S****Genuine Qualities**

Are made from the finest mustard seeds only. Their compounds, as manufactured for upwards of a century, are guaranteed free from all ingredients imparting spurious heat, and are therefore equally suitable for both table and medical purposes.

Undertake not to supply Co-operative Stores.

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COFFEE AND MILK.

A New Preparation which, in itself, contains every essential for producing a cup of delicious, invigorating, and fine-flavoured Coffee.

The experience gained by T. S. in the manufacture of his now well-known Essences of Coffee has enabled him so to conserve the properties of the Coffee that, though combined with Condensed Milk, it still retains the full strength and aroma of freshly-roasted Coffee—a result hitherto unattained.

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SEVEN PRIZE MEDALS AWARDED.

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Yorkshire Relish**

THE MOST DELICIOUS SAUCE IN THE WORLD.

This cheap and excellent Sauce makes the plainest viands palatable, and the daintiest dishes more delicious. To Chops and Steaks, Fish, &c., it is incomparable. Sold by Grocers, Oilmen, Chemists, &c., in Bottles, 6d., 1s., and 2s. each.

Over **FOUR MILLION** (4,000,000) Bottles Sold Annually.

LARGEST SALE OF ANY SAUCE IN THE WORLD.

CAUTION.—On each Yorkshire Relish Label is our Trade Mark, Willow Pattern Plate, and name, **GOODALL, BACKHOUSE & CO.** No other is genuine.

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THE BEST IN THE WORLD.

The cheapest, because the best, and indispensable to every household and an inestimable boon to housewives. Makes delicious Puddings without eggs, Pastry without butter, and beautiful light Bread without yeast. Sold by Grocers, Oilmen, Chemists, &c., in 1d. Packets; 6d., 1s., 2s., and 5s. Tins.

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The best, cheapest, and most agreeable tonic yet introduced. The best remedy known for Indigestion, Loss of Appetite, General Debility, &c. Restores delicate individuals to health and vigour. Sold by Chemists, Grocers, &c., at 1s., 1s. 1½d., 2s., and 2s. 3d. each bottle.

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For making delicious Custards without Eggs, in less time and at half the price. Unequalled for the purposes intended; will give the utmost satisfaction, if the instructions given are implicitly followed. The Proprietors entertain the greatest confidence in the article, and can recommend it to Housekeepers generally as a useful agent in the preparation of a good Custard.

Delicious to Plum Pudding.	Delicious to Stewed Rice.
Delicious to Jam Tarts.	Delicious to all kinds of Fruit.
Delicious to all kinds of Puddings.	Delicious to everything.
Delicious to all kinds of Fruit Pies.	Delicious alone.

Sold in Boxes, 6d. and 1s. each, by Grocers, Chemists, Italian Warehousemen, &c.

**Goodall's
Ginger Beer Powder**

Makes Three Gallons of the Best Ginger Beer in the World for 3d.

Is a delicious and invigorating beverage, possessing valuable medicinal properties. It is cooling in its nature, and a most wholesome beverage for both winter and summer. It is easily made, and is by far the cheapest and best Ginger Beer Powder ever offered to the public. Sold in Packets, 3d. and 6d. each, by all Grocers, Chemists, and Italian Warehousemen.

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FOR PAINTING STOVES, GRATES, IRON, TIN, &c.

This invaluable composition is superior to any yet offered to the public, possessing great brilliancy, and thoroughly protecting the article it is applied to. Sold in Bottles at 6d. and 1s. each.

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PURE SODA, SELTZER, POTASH, LITHIA, &c.,
LEMONADE,
GINGER ALE, AND QUININE TONIC.

Prepared and Bottled specially for Export, and warranted to keep well.

Manufactured with the utmost care and by improved machinery, these productions are recommended for **purity and excellence of quality** by many leading members of the Medical Profession, and have for many years had a preference by the public; the flavour of the **Lemonade and Ginger Ale** being procured from the **fresh Fruit and Finest Jamaica Ginger**, they may be relied upon as furnishing delicious and satisfactory beverages, either for general use or specially for invalids.

The **Soda Water** is absolutely free from any metallic impregnation, and being by improved machinery highly charged with Carbonic Acid Gas, and each bottle containing a definite and unvarying proportion of **Pure Carbonate of Soda**, J. & B. have every confidence in inviting a trial from those who have not already patronised them.

The **Seltzer, Potash, and Lithia Waters** are prepared with the utmost exactitude and the purest ingredients.

The **New Quinine Tonic** furnishes a pleasant form for the administration of a most valuable restorative, and is refreshing and agreeable.

Ginger Ale (Aromatic) of superior quality, and strongly recommended as a Non-Alcoholic and warm stimulant beverage.

N.B.—Every Bottle is protected by a distinctive Label, with Name and Trade Mark, and each Cork is branded.

Counter Bills and Analytical Reports, with Agents' Names and Addresses, supplied when requested.

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A CERTIFICATE OF MERIT awarded by the British Sanitary Institute of Great Britain, after a deferred PRACTICAL TRIAL AND EXAMINATION, July 4th, 1879.

TO THE MINERAL WATER TRADE.

DISCS FOR ALL PATENT BOTTLES.

These are a great convenience, strengthening the Cap Labels, and keeping the lips of the Bottles free from dirt. The following sorts are kept in stock:—

"PLAIN" DISCS,

Size of this Circle, on Stout Boards, no Printing.

Price—5,000, 8d.; 10,000, 7d.; 25,000, 6d.; 50,000, 5d.; 100,000, 4d.
per 1,000.

"GROTESQUE" DISCS,

Printed on good Cardboard in Blue Ink; they consist of a great variety of Amusing Figures.

Price—5,000, 1s.; 10,000, 11d.; 25,000, 10d.; 50,000, 9d.; 100,000, 8d.
per 1,000.



"MOTTO" DISCS,

Printed on Stout Boards in Black Ink; they consist of an immense variety of Mottoes and Well-known Sayings.

Price—5,000, 9d.; 10,000, 8d.; 25,000, 7d.; 50,000, 6d.; 100,000, 5d.
per 1,000.

"QUOTATION" DISCS,

Printed on good Cardboard, Lake Ink; they consist of an immense number of Quotations from Shakespeare, Byron, Milton, Burns, &c., &c.

Price—5,000, 1s.; 10,000, 11d.; 25,000, 10d.; 50,000, 9d.; 100,000, 8d.
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IS THE
BEST POLICY.

GIVE US A TASTE
OF YOUR QUALITY
SHAKESPEARE

All the above are assorted in Boxes of 5,000, each Box containing an immense assortment. Prices and Samples submitted for all kinds of Labels, and also for Show Cards, Circulars, Price Lists, and all printed matter required in the business.

J. B. LAMBE & CO.,
PRINTERS TO THE MINERAL WATER TRADE,
199 UPPER THAMES STREET, LONDON, E.C.

HAY'S SOLUBLE ESSENCE OF JAMAICA GINGER

(GUARANTEED PURE AND FREE FROM CAPSICUM).

Trade Price, 5s. per lb.

Highly adapted for the manufacture of *Transparent Aërated Waters*, and for all *Dietetic, Medicinal, and Pharmaceutical* Purposes. THE COST in the manufacture of GINGER BEER, &c., is a little under 2½d. per dozen bottles.

Medical and other opinions on the Soluble Essence.

"Singularly free from resin."—*The Lancet*.

"It should entirely supersede the officinal preparation of the British Pharmacopœia."—*Medical Press*.

"It is a pure, elegant preparation, and is free from resinous matter."—*Medical Times and Gazette*.

"It is a pharmaceutical desideratum."—*The Chemist and Druggist*.



Medical and other opinions on the Ginger Beer made from the Soluble Essence.

"An excellent effervescing drink."—*The Lancet*.

"Preferable to some wines we have tasted under the name of champagne."—*Medical Press*.

"Clear and transparent, and very pleasing to the palate."—*Medical Times and Gazette*.

"Has the purest Jamaica Ginger aroma, distinguishable as soon as poured out. It is a beverage fit for any gentleman's table, and ought to attain great popularity."—*The Chemist and Druggist*.

"Stands in the foremost rank of Aërated Waters."—*Mineral Water Trade Recorder*.

THE COMPOUND ESSENCE

(GUARANTEED PURE AND FREE FROM CAPSICUM).

Trade Price, 5s. 6d. per lb.

This Essence, which is an addition of *Vanilla, Lemon, and other flavours* to the above, is strongly recommended for the manufacture of Ginger Beer, Wines, &c., to which it imparts with the GINGER a PECULIARLY FINE FRUITY FLAVOUR and AROMA. THE COST of this Essence in the manufacture of Ginger Beer, &c., is a little under 3d. per dozen bottles.

THE COMPOUND FORTIFIED ESSENCE Specially adapted for the Manufacture of GINGER ALE.

Trade Price, 5s. 6d. per lb.

THIS ESSENCE, besides its special adaptation as above, is strongly recommended for the manufacture of GINGER BEER and other kinds of Aërated Beverages, especially in those cases where it is desired to impart to those drinks at a SMALL COST the FULLEST amount of PUNGENCY with the FINE GINGER AROMA and FRUITY FLAVOURS of the LAST-MENTIONED ESSENCE.

THE COST of this Essence in the manufacture of GINGER ALE is 1½d. per dozen bottles, and for GINGER BEER or GINGERADE a little under 1½d. per dozen bottles.

GINGER ALE EXTRACT

Supplies all Colouring and Flavouring. 4/- per lb.

THIS EXTRACT is strongly recommended for the manufacture of GINGER ALE, to which it imparts an unusually FINE FLAVOUR AND GREAT BRILLIANCY, at a cost of a little under 1d. per dozen bottles.

PREPARED BY

**W. HAY, Manufacturing Chemist,
4 REGENT'S TERRACE, ANLABY ROAD, HULL.**

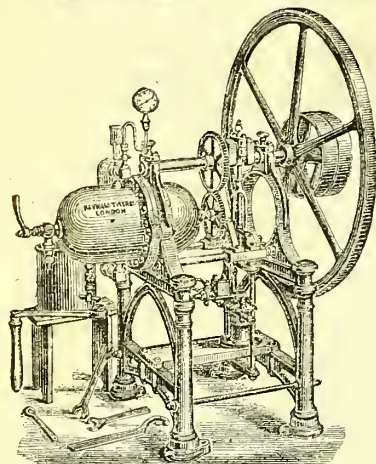
AGENTS:

Messrs. HEARON, SQUIRE & FRANCIS, Wholesale Druggists, 5 Coleman Street, London, E.C.

GOLD MEDAL

AWARDED FOR

SODA WATER MACHINERY.



Strong Double Soda-water Machines, with 2½-in. Pumps and extra large Cylinders.

SODA WATER MACHINERY

WILL BE EXHIBITED AT THE

NATIONAL MEETING,

OCTOBER 1, 2, 4, 5, 6, and 7th,

AT THE

AGRICULTURAL HALL,

BY

HAYWARD TYLER & CO.,

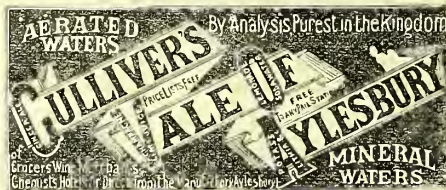
ENGINEERS,

WHITECROSS STREET, LONDON.

ESTABLISHED 1815.

AWARDED THE CERTIFICATE OF MERIT AT THE SANITARY EXHIBITION OF GREAT BRITAIN.

A SIX DOZEN CASE, which may be assorted, to any Railway Station for 36s., returned Empty allowed 18s.



A Liberal Discount to the Trade, who should send for Sample Case before ordering elsewhere.

Full detailed List of Analysis, Testimonials, and Opinions of the Press on application.



LONDON, 1862.



LONDON, 1873-74.



PARIS, 1867-78.



VIENNA, 1873.



PHILADELPHIA, 1876.



CAPE, 1877.

SODA WATER MACHINERY,

And all accessories connected with the business.

HANDSOME MARBLE COUNTER FOUNTAINS,

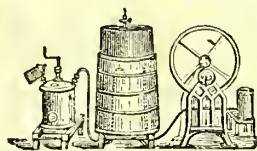
For dispensing Iced Fruit Drinks.

MACHINES FROM 30 POUNDS.

Sole Agents for Codd's Patent Globe-Stoppered Soda Water Bottles.

In use by over 500 established Soda Water Makers in England alone.

SOLE MAKERS OF THE IMPROVED LONDON-MADE SYPHON, 2s. each in quantities.



CATALOGUE FORWARDED FREE.

THE "LONDON-MADE" SYPHON.

BARNETT & FOSTER, 23^T Forston Street, Shepherdess Walk, City Road, London, N.

PATENT SODA WATER BOTTLES.



BARRETT & ELERS,

9 DACRE STREET, WESTMINSTER, LONDON, S.W.

We are bringing out some

NEW BOTTLES

AND

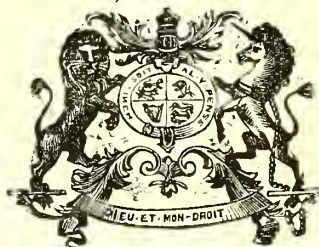
STOPPERS

FOR THE APPROACHING SEASON,
MUCH CHEAPER,

And with great Improvements on existing Patents.

Before giving your orders, please write for samples.

By Royal Letters Patent, Dated
June 2, 1874, No. 1923.



BARRETT & ELERS' FILLING MACHINES & SYRUP PUMP COMBINED

Have been proved to be

The Best and Cheapest in the Market, of which now upwards of 1,000 have been Sold.

IMPORTANT NOTICE.

Should the Bottles break, the Stoppers may be newly fitted up and used again in fresh Bottles, thereby being a saving and advantage over some other Patents.

MONDOLLOT & CO., LD.

BEFORE PURCHASING YOUR

SODA WATER MACHINERY

GOLD MEDAL,

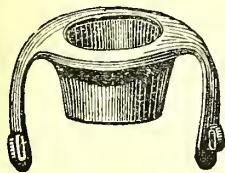
Write for Mondolot's CATALOGUE, which will be sent post free on application.

PARIS, 1878.

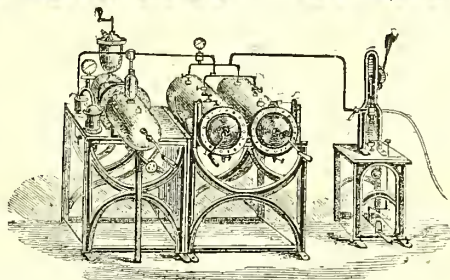
13 LITTLE JAMES STREET, BEDFORD ROW, LONDON, W.C.

SODA-WATER MACHINERY.

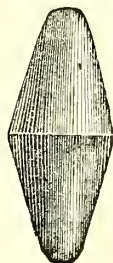
PATENT NOZZLE



FITS ANY BOTTLE.



CONE STOPPER.



BALL STOPPER.



SODA WATER MACHINE COMPLETE, WITH RACK.

DAVENPORT'S NOZZLE AND STOPPER is the best Patent for utilising old Bottles, and converting them into Patents. No Corks or Wire, and saving entire cost in one season. The New Nickel-plated Nozzle makes this the most attractive Patent in use. Trial allowed. Prices lowered. Send for Samples. New Bottles ready fitted for use now supplied. Catalogues of Soda-Water Machines, Ice-Making Machines, Engines, Boilers, Copper Cylinders, Syphons, Seltzogenes, Filters, &c., and all accessories to the Soda-Water Trade.

AGENTS FOR HAYWARD TYLER & CO.'S SODA-WATER MACHINERY.

"

"

BARRETT & ELERS' Patent Stoppers in Lamont's Bottles.

Illustrated Catalogues, of sixty-four pages, post free to all parts of the World.

DAVENPORT & CO., Soda-Water Machinists and General Machinery Agents,
99^N HIGH HOLBORN, LONDON.

THE

GENERAL MINERAL WATERS SUPPLY ASSOCIATION, LIM.,

SUFFOLK BUILDINGS, SUFFOLK ST., BARON ST., PENTONVILLE HILL,
LONDON, N.

The Directors are now prepared to appoint ONE AGENT in each Town on SPECIAL TERMS.
Agents are supplied with MINERAL WATERS of high-class quality, Manufactured with Filtered Water,
at 10s. per Gross.

VALLET'S PATENT.

Fig. 1.




Fig. 3.



New Stopper.

The Stoppers are made in six different sizes—Nos. 1, 2, 3, 4, 5, and 6. Nos. 4, 5, and 6 are most suitable for general use, the Bottles adapted to which having sufficient capacity in the mouth to allow a copious flow of the liquid, whilst Nos. 1, 2, and 3 are specially made for Bottles which have only a small mouth, thus retarding the flow of the liquid, and causing the evaporation of the carbonic acid gas before the Bottle can be emptied.

ROYALTY FREE.

 All Communications to be addressed to

**L. VALLET, 49 Everton Road,
LIVERPOOL.**



Fig. 2.—THE STOPPERED AND FITTED BOTTLE.

THE PATENT "BISSCHOP" GAS-ENGINE.

POWER.	PRICE. Carriage Extra.	Space Occupied.	Height.	Revolutions per minute.	Consumption of Gas per hour.	Approximate Cost of Gas per hour.
One Man	£25	2ft. 4in. x 2ft.	4ft.	100 to 140	12 cu. ft.	1d.
One and Half Man	£30	2ft. 4in. x 2ft.	4ft.	100 " 130	17 " "	2d.
Two Man	£35	2ft. 9in. x 2ft.	4ft. 8 in.	90 " 120	21 " "	3d.
Four Man	£50	4ft. x 2ft. 6in.	6ft.	80 " 90	28 " "	1 1/2d.

*The Simplest, the Most Economical, and the Most Efficient
Small Motive Power in Existence.*

**EXTENSIVELY IN USE FOR TURNING SODA
WATER MACHINES.**

*No Water. No Separate Meter. No Lubrication of the
Cylinder or Slide Valve. A Boy can Manage it.*

Average Weekly Sale - - 12 Engines.

J. E. H. ANDREW,
18 and 20 WATERLOO ROAD, STOCKPORT,
Sole Manufacturer for the United Kingdom.

KORFF'S PURE CHOCOLATE POWDER.

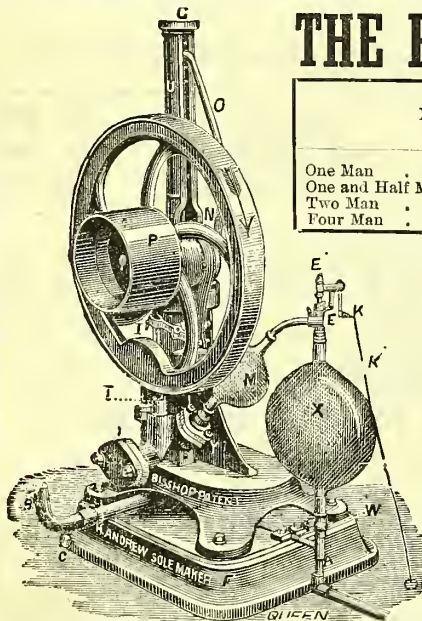
Sold in Pound, Half-pound, and Quarter-pound Tins,
at 3s. 4d. per lb.

"It is GENUINE, and of EXCELLENT QUALITY."—ARTHUR HILL HASSALL, M.D.

**Sole Consignees:—E. A. PHILLIPS & CO.,
23 GREAT ST. HELEN'S, LONDON.**

Sample Case containing 2 1-lbs., 3 1/2-lbs., and 4 1/4-lbs., sent carriage free on receipt of 12s. town, or 12s. 6d. country.

TESTIMONIALS ON APPLICATION.



THE CHEMISTS' AERATED & MINERAL WATERS ASSOCIATION

(LIMITED),

Offices & Factory—45 GIFFORD STREET, and 112 PEMBROKE STREET, CALEDONIAN ROAD.

Incorporated with limited liability, under the Companies' Acts, 1862, 1867, and 1877, whereby the liability of Shareholders is strictly limited to the actual amount of their respective Shares.

The objects of this Association are—Firstly, to manufacture and supply to Shareholders who are Chemists, and to Hospitals, Aerated and Mineral Waters of specified formulae and guaranteed quality. Secondly, to deal generally in the Waters of the various mineral springs in Great Britain.

The Association, which is conducted on the cash co-operative principle, is now thoroughly established on a sound basis and is supported by over 400 Shareholders. Only 170 £1 Shares remain unallotted, showing the advisability of those Chemists at once joining who desire to reap the benefits of this Association.

The Branch at Harrogate is now supplying Aerated Mineral Waters, and also the Natural Waters of the Kissengen and Sulphur Springs.

Attention is drawn to the Speciality, Rubins or Bark Beer, a pleasant and effective beverage, manufactured from the Red Bark, and which is submitted under the sanction of the faculty as a substitute for alcoholic stimulant.

For Prospectus and full particulars apply to the Offices of the Association.

H. T. BUTLER, Secretary.

T. & F. J. TAYLOR'S

AERATED WATERS,
Newport Pagnel.

ESTABLISHED 1835.

SODA, POTASH, SELTZER, AERATED (without Alkali), and LITHIA WATERS, LEMONADE AND GINGER ALE.

Each Bottle is protected by a Label bearing the Signature of the Firm.

Purity and Excellence of the Water certified by Analysis by Professor ATTFIELD, Ph.D., F.C.S.

SYPHONS.

GOLD MEDAL,

PARIS, 1878.

MONDOLLOTS

Are the most Perfect in Shape and Finish; Tops of Pure Block Tin; Glass of the Finest Description.

WRITE FOR PRICES AND PARTICULARS TO

13 Little James Street, Bedford Row,
LONDON.

FOREIGN MINERAL WATERS.

FOREIGN LIQUEURS.

FOREIGN WINES.

FOREIGN SPIRITS OF EVERY DESCRIPTION.

ANGOSTURA BITTERS.

APPLY TO

JAMES SMITH & COMPANY, IMPORTERS,
LIVERPOOL: 9 LORD STREET.

EUGENE GERAUT & CO.

NEW PATENT LEVER SELTZOGENES.

For the immediate production of Eau de Vichy, Soda Water, Sparkling Lemonade, Aerated Waters.

First introduced by EUGENE GERAUT & Co. in 1853.

3-pint, wire, 13/; 5-pint, wire, 18/; 8-pint, wire, 30/.
Cane covered, 3-pint, 6d.; 5-pint, 1/; 8-pint, 2/ each extra.
Strongly silver-plated top, 5/ each extra. 3-pint size, strongly silver-plated, richly decorated porcelain stands, 30/ each; 5-pint size, ditto, ditto, 38/ each; 8-pint size, ditto, ditto, 48/ each.

Our well-known Seltzogenes are improved yearly, and have already stood a public test of upwards of Twenty Years, and are acknowledged as THE VERY BEST.

POWDERS FOR THE ABOVE.—Subject.—3-pint, per dozen boxes, 22/; 5-pint, ditto, 36/; 8-pint, ditto, 65/.
LIBERAL DISCOUNT FOR LARGE QUANTITIES.

1 & 2 CORPORATION BUILDINGS, FARRINGTON ROAD, LONDON, E.C.

SYPHONS.

IMPORTANT NOTICE.

Great Reduction in Price.

Clear or coloured glass, pure ENGLISH BLOCK TIN TOPS, with piston or cap.

22/6 per dozen, for quantities of not less than one gross.

25/ per dozen, for less than one gross.

Packing in Cask, 5/ per gross.

The Name marked on the metals free of charge for quantities of not less than one gross.

The Name engraved on the glass, 2d. each extra.



THE LEAMINGTON APNEUMATIC MINERAL WATERS

Apneumatic Soda Water.
Apneumatic Brighton Seltzer.
Apneumatic Potass Water.



Apneumatic Lithia Water.
Apneumatic Aerated Water.
Lemonade.

GINGER ALE (Aromatic). ORANGE CHAMPAGNE.

GUARANTEED FREE FROM ALL IMPURITIES.

Our terms are more favourable for a family trade than those of any first-class makers.

KINMOND & CO., LATE J. DAILY & CO., LEAMINGTON

Trade List and Descriptive Pamphlet of the Apneumatic process free on application.

FOREIGN

MINERAL WATERS.

FREDERICKSHALL (5 Cases, 6d. per Case less), 24/6 Case, 30 bot.; 34/ Case, 60 3-bot.

APOLLINARIS (20 Hprs., 1/- per Hpr. less), 25/ Hpr., 50 bot.; 39/ Hpr., 100 3-bot.

Clampers free, carriage paid; Empty Bottles, 6d. per dozen.

HUNYADI JANOS (10 Cases, 3-bts., 5/- less; 10 Cases, 6-bts., 3/- each less), 30/- Case, 25 bts.; 50/- Case, 50 3-bts.

ELTZER 11/6 Hpr., 25 bts.

PULLNA 15/6 Hpr., 50 3-bts.

VICHY... .. 18/- Case, 20 bts.

... .. 30/- Case, 50 1-bts.

... .. 31/- " 50 bts.

... .. 27/- " 50 3-bts.

CARLSBAD 37/6 " 50 bts.

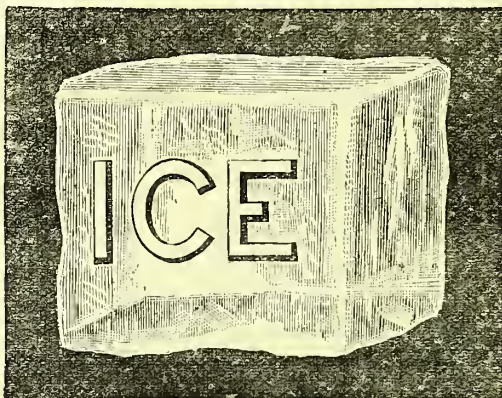
KISSENGEN 45/- " 50 "

SCHWABACH 27/6 " 50 "

HOMBURG 37/6 " 50 "

WILDUNGEN 40/- " 50 "

CARLSBAD SALTS, 1/2-Bots., 31/- per doz.; 3-bots., 41/- per doz.; Bots., 80/- per doz.



FINE NORWEGIAN BLOCK ICE.

ORIGINAL BLOCKS, 2 to 3 cwt. each 2/6 per cwt.

1 cwt. to 2 cwt. 1/2d. per lb.

Under 1 cwt. 1d. per lb.

Packing and Mats for Original Blocks free 3d. each allowed for Mats if returned in good condition.

PRINTED DIRECTIONS for STORING ICE sent free on application.

W. B. HARRISON,
IMPORTER OF ICE AND
MINERAL WATERS,
6 Bridge Street, Sunderland.

J. H. CUFF'S MINERAL WATERS,

Atkinson St., Deansgate,
MANCHESTER.

ESTABLISHED IN 1801.

SODA WATER (ordinary)

SODA WATER B.P.

SELTZER WATER

LITHIA WATER

POTASS WATER

15 grs., 20 grs., & 30 grs.
(each half-pint)

LEMONADE

GINGER ALE

GINGER BEER

AERATED WATER

without alkali

QUININE TONIC
WATER

LITHIA WITH POTASS WATER, &c., &c.,

Supplied in ordinary and half-sized bottles and in syphons.

Cuff's Waters are prepared expressly for a High-class Family Trade.

PRICES MOST REASONABLE.
LIST FREE ON APPLICATION.

CARRIAGE PAID ON FULL GOODS
AND RETURNED EMPTIES.

NEW AND IMPORTANT DISCOVERY.

GINGER ALE,

From Pure Jamaica Ginger.

The difficulty of using Ginger in the manufacture of "Ginger Ale," and at the same time having a CLEAR and SPARKLING DRINK, has, after much labour and expense, been thoroughly overcome by

Messrs. HARSTON & CO., of LEEDS,
And they are now able to place before the public a BRIGHT and SPARKLING DRINK, made purely from genuine Ginger Root.

TRADE MARK.



TRADE MARK.

Registered Label.]

HARSTON & CO.'S

Ginger Ale,

from Pure Jamaica Ginger.
Carries a beautiful creamy head.

HARSTON & CO.'S

Ginger Ale,

from Pure Jamaica Ginger.
Wholesome and Refreshing.

HARSTON & CO.'S

Ginger Ale,

from Pure Jamaica Ginger.
A safe Drink for Ball-room or Cricket-field.

HARSTON & CO.'S

Ginger Ale,

from Pure Jamaica Ginger.
For railway travelling, driving or exposure to cold.

HARSTON & CO.'S

Ginger Ale,

from Pure Jamaica Ginger.
Has wonderful nourishing properties.

HARSTON & CO.'S

Ginger Ale,

from Pure Jamaica Ginger.
Restores Circulation; is Warming and Comforting.

HARSTON & CO.'S

Ginger Ale,

from Pure Jamaica Ginger.
Is Non-Intoxicating.

HARSTON & CO.'S

Ginger Ale,

from Pure Jamaica Ginger.

Recommended by the Medical Profession for Consumptive Patients.

BOURNE WATER,

THE PUREST IN ENGLAND.

R. M. MILLS & CO.,

BOURNE, LINCOLNSHIRE,

Manufacture all kinds of AERATED WATERS
from this celebrated Artesian Spring.

Sold by their Agents throughout England.

Price, with Descriptive Pamphlets, upon application.

*Caution*W. A. ROSS, the Original Patentee and Maker of
The Celebrated Belfast Ginger Ale, cautions
the Public that the "GENUINE" can only be had at*Ross's Royal Ginger Ale*
AND
Aerated Water Works Belfast.

NAME ON CORK, CAPSULE, AND LABEL REGISTERED.

EXPORT ORDERS HAVE SPECIAL ATTENTION.

"ABSOLUTELY PURE."

SEE ANALYSES. Sent post free on application.

ELLIS'S

REGISTERED.

Soda, Potass,
Seltzer, Lemon-
ade, also Water
without Alkali.
For GOUT,
Lithia Water, &
Lithia &
Potass Water.**RUTHIN****WATERS.**BOTTLES BRANDED "R. ELLIS & SON, RUTHIN," and every
label bears their Trade Mark. Sold every where, and wholesale of**R. ELLIS & SON, RUTHIN, NORTH WALES.**

London Agents: W. BEST & SONS, Henrietta St., Cavendish Square.

BEDDARD'S**SPRING & AUTUMN HEALTH SALINE.**Neatly put up in 6d. and 1s. Packets. *Very Saleable.***BEDDARD'S****BELGRAVIA TOOTH PASTE.**

A MOST EXCELLENT DENTIFRICE.

Handsomely put up in large Jars. ONE SHILLING EACH.

LIBERAL TERMS TO TRADE, SPECIAL TO SHIPPERS.

PREPARED ONLY BY

JOHN BEDDARD,

64 CHURTON ST., BELGRAVE ROAD, LONDON, S.W.

W. J. BUSH & CO.,

Distillers and Importers of

Essential Oils & Fruit Essences,

SPECIALITIES FOR AERATED WATER AND CORDIAL MANUFACTURERS,

ESSENCE LEMON,

EXTRA SUPER QUALITY,

*The only pure Essence imported, made at our Works at Sicily.***ESSENCE GINGER ALE,**

For Winter Drinks.

TONIC ESSENCE,

FOR BITTER WATER.

Soluble Essence Lemon.**SOLUBLE ESSENCE GINGER.****SOLUBLE ESSENCE OF PEPPERMINT.**

BEWARE OF SPURIOUS IMITATIONS.

W. J. B. & Co. caution the Trade against the so-called
Soluble Essences now so frequently offered for sale,
which are nothing more than mere Tinctures; and
although offered at lower prices, cost 5 or 6 times as
much in use, whilst imparting a strong medicated
flavour. W. J. B. & Co. further beg to inform their
friends that Aerated Drinks as Pale Ale, Horehound
Beer, &c.—made from their Soluble Essences are exempt
from Excise regulations.**NONE OTHERS ARE GENUINE.****CAUTION.****GUM EXTRACT**

(French Cream),

PROTECTED BY ROYAL LETTERS PATENT.

*For producing a Permanent Head of Creamy Richness on
Ginger Beer, Ginger Ale, Lemonade, and other Aerated
Beverages; also on Beers, Ciders, Wines, &c.*TO MAKERS AND VENDORS OF EFFERVESCENT
DRINKS, AND TO THE PUBLIC GENERALLY.**M**ESSRS. W. J. BUSH & CO., of Artillery Lane, Bishopsgate,
London, Manufacturing Chemists, hereby give notice that
they are sole proprietors of the patent for making the above
Gum Extract, and of the recipe from which and the process by
which the said extract is prepared. Messrs. W. J. Bush & Co.
hereby caution all persons against making the said Gum Extract
or any imitation thereof. And they also caution all persons
from selling or using the said Gum Extract or any imitation
thereof other than that made or supplied by them or their
authorised agents. The only genuine Gum Extract is that
prepared by Messrs. W. J. Bush & Co., 20 to 23 Artillery Lane,
Bishopsgate, London, and the Works, Ash Grove, Hackney, and
sold in bottles and in tins, price 2s. 6d. per lb., bearing their
labels, and issued from their warehouses.*All persons infringing the above Patent will be
immediately proceeded against.***W. J. BUSH & CO.,**

20-23 Artillery Lane, Bishopsgate, London E.

ZOEDONE

A DELICIOUS BEVERAGE.

The BRITISH MEDICAL JOURNAL says:—

"We can confidently recommend it to the attention of physicians and others who are occasionally at a loss what to direct their patients to take when parched by feverish thirst or depressed by exhausting ailments—notably in cases where alcoholic stimulants would be prejudicial. We feel that it would be found exceedingly useful in mitigating the discomfort oftentimes experienced by those suffering from the thirst, loss of appetite, and general *malaise* connected with the last stage of phthisis and chronic bronchitis.

"We would also, from our observations and experience, advise its introduction into clubs, taverns, and places of public amusement, where it would judiciously supersede vinous and alcoholic stimulants, seeing that it contains, as its name implies, life-giving ingredients in a form easily assimilated."

A BRAIN & NERVE TONIC.

The LANCET says:—

"ZOEDONE contains the soluble phosphates of lime, iron, soda, and potash, in medicinal quantities. Very efficient and pleasant."

The MEDICAL PRESS AND CIRCULAR says:—

"Is commendable equally for the style in which it is put up and the delicate flavour which it possesses, and also on account of its special merits as a nervine tonic."

NON-ALCOHOLIC.—STIMULATES by STRENGTHENING.

Every Chemist that has introduced ZOEDONE has found a large and regularly increasing sale for it. It is put up in Champagne Bottles, and there is no trouble with empties, as the bottles are included in the price. Customers supplied with Pamphlets for distribution; also a special Circular for medical men stating the formula.

Orders should be anticipated by one week.

ZOEDONE is supplied direct by us and our Agents on the following Terms, Cash Prices, free on Rails at Wrexham:—

SMALL		6/6 per dozen (EXPORT,		7/0 per dozen),		in 6 dozen cases.		} Bottles and Packages included.
"	"	6/8	"	"	7/2	"	3	
"	"	6/9	"	"	7/3	"	2	
"	"	6/10	"	"	7/4	"	1	
"	"	12/0	"	"	13/0	"	3	
LARGE		12/6		13/6		1		

WHOLESALE AGENTS:—

LONDON—Allen & Hanburys.
 " Barclay & Sons.
 " W. Best & Sons.
 " Corbyn, Stacey & Co.
 " Edwards & Sons.
 " Evans, Lescher & Evans.
 " Hearon, Squire & Francis.
 " Ingram & Royle.
 " Lynch & Co.
 " S. Maw, Son & Thompson.
 " F. Newbery & Sons.
 " Probyn & Co.
 " Savory & Moore.
 " Wright, Layman & Umney.
 LIVERPOOL—W. Paterson & Sons.

BELFAST—Grattan & Co.
 BIRMINGHAM—Southall Bros. & Barclay.
 BRADFORD—Harrison, Parkinson & Co.
 BRISTOL—Ferris & Co.
 CHELTENHAM—Joseph James.
 CORK—W. & H. Goulding.
 " T. R. Lester.
 COVENTRY—Wyleys & Co.
 DUBLIN—Hamilton, Long & Co.
 " Johnson & Oldham.
 " A. & R. Thwaites & Co.
 EDINBURGH—Duncan, Flockhart & Co.
 " John Mackay & Co.
 GLASGOW—The Glasgow Apothecaries' Co.
 HULL—Lofthouse & Saltmer.

LANCASTER—W. H. Bagnall & Co.
 LEEDS—Goodall, Backhouse & Co.
 LEICESTER—John Richardson & Co.
 LIVERPOOL—Clay, Dod & Case.
 " Evans, Sons & Co.
 " Rames & Co.
 " R. Sumner & Co.
 " Clay & Abraham.
 " Symes & Co.
 MANCHESTER—James Woolley, Sons & Co.
 NEWCASTLE-ON-TYNE—Brady & Martin.
 NICE—J. Daniel.
 NORTHAMPTON—Frederick Kirby.
 PARIS—Hogg, 2 Rue Castiglione.
 YORK—Henry J. Pratt.

Retail Agents whose names are not on the published list should communicate at once with the Manager.

PATENTEE—DAVID JOHNSON, F.C.S. MANAGER—JOHN MOSS, F.I.C., F.C.S.

Manufacturers—THE ZOEDONE COMPANY (Lim.), Wrexham, North Wales.

LONDON OFFICE: 25 ABCHURCH LANE, E.C.

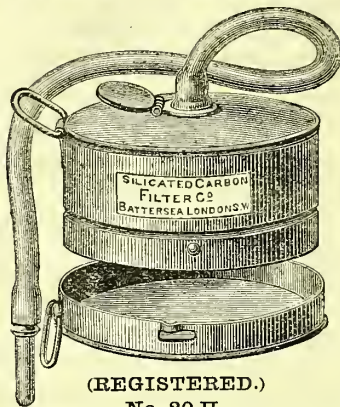
NOTE.—ALL orders for the Company must be sent to Wrexham.

NOVELTY.

SILICATED CARBON POCKET FILTER,

IN GERMAN SILVER, NICKEL-PLATED.
 Retailed at FIVE SHILLINGS each.

Designed by
 MAJOR FRASER,
 of the
 ROYAL ENGINEERS,
 especially
 for Officers' Kits.
 Weighs only 8 ounces.



(REGISTERED.)
 No. 20 H.

It has been approved
 by the
 Authorities at the
 Horse Guards, and has
 been largely
 used in the Afghan and
 Zulu Expeditions.

Sample sent free by Post on receipt of FOUR SHILLINGS.

DOMESTIC FILTER, NO. 27.



Made in cream-coloured Stoneware, fitted with the Silicated Carbon Media, complete with Cover and Silver-plated Tap.
 All sizes of this pattern can now be had with Patent Ice Compartment, which renders this Filter the most perfect of Refrigerators.

PRICES.		With Ice Compartment.	
No. 0, capacity	1/2 gall. ..	10s. 6d. ..	—
No. A, " 1	" ..	14s. 6d. ..	17s. 6d.
No. B, " 2	" ..	21s. 0d. ..	25s. 0d.
No. C, " 4	" ..	32s. 0d. ..	36s. 0d.
No. D, " 6	" ..	42s. 0d. ..	48s. 0d.
No. E, " 8	" ..	52s. 0d. ..	60s. 0d.
No. F, " 12	" ..	70s. 0d. ..	80s. 0d.

UNIQUE STONEWARE FILTER, NO. 28.

No House should be considered as thoroughly furnished until it is supplied with one or more good Filters.

No Water should be used for Drinking or Cooking without being Filtered.

This Filter is made of a New Ornamental Stoneware, similar in shape to the Domestic Filter, and of two-gallon capacity. When arranged in a Hall or Conservatory, side by side with evergreens, the effect is very pleasing.

Price, with Silver-plated Tap, 30s.



MAIN SUPPLY FILTER, NO. 40.

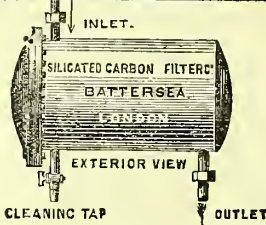
SPECIALLY ADAPTED FOR
 Mansions, Schools, Hospitals, Public
 Institutions, Breweries, Distilleries,
 Soda Water Manufactories,
 Dye Works,
 And all other Establishments where large quantities of

PURE WATER

Are required.

The ordinary Sizes kept in Stock are as follows:—

A, 1/2-inch or 3/4-inch pipe	£6 6s.
B 1-inch pipe	£9 9s.
C, 1 1/2-inch, 1 1/4-inch pipe	£15 15s.
D, 2-inch pipe	£26 5s.



This Filter is extremely simple in construction, and can be either connected with a Cistern or attached to the Main Service Pipe. It requires no attention beyond an occasional opening of the Cleansing Tap, and will deliver a supply of purified water at a rate of 50 to 1,000 gallons per hour, according to size.

Special Contracts entered into
 for Large Works, Institutions,
 &c., &c.,

FOR PURIFYING THE WHOLE OF THE WATER SUPPLY OF A BUILDING BEFORE USE.

Ensuring Rapid and Perfect Filtration, at either High or Low Pressure.

SILICATED CARBON FILTER CO., CHURCH ROAD, BATTERSEA, LONDON.

PARIS: 131 Boulevard Sebastopol.

NEW YORK: 194 William Street (H. R. Mensing, Agent).

HAMBURG: 9 Deichstrasse (Joseph Schmutzer & Co., Agents).

SILICATED CARBON FILTERS.

SYPHON FILTERS FOR TRAVELLERS.

By means of these Filters pure and perfectly wholesome water may be drunk from any pond or stream by simply immersing the Filter therein and drawing the water through the tube by suction.

Each of these portable Filters may be



No. 20.

used as a Syphon by placing it in a vessel of water, then drawing the water by the mouth, and allowing the flexible tube to hang over the side below the Filter. When once set in operation their action is continuous.

They are readily cleaned from sedimentary matter by merely blowing through the tube, and brushing the surface of the filtering medium.

A.—Pocket Filter, 2½ inches diameter, in porcelain, with glass mouthpiece, in decorated metal box	s. d.
B.—Ditto, 3½ inches diameter, in best stoneware	2 6
C.—Ditto, " " with silver-plated tap	5 0
D.—Emigrant's, 5 inches diameter, with silver-plated tap	7 0
E.—Pocket Filter, for carrying over shoulder, as supplied to the Forces in Abyssinia and in Zululand, and to the Ashantee Expedition	12 0
F.—Ditto, nickel-plated, designed by Major Fraser, R.E., and specially recommended by the Horse Guards for Officers' kits	3 6
	5 0

TABLE FILTER, NO. 24.

Made of stout glass, in 1, 2, and 3 pint sizes, the filtering medium being securely fitted into the bell-funnel, so that it is not liable to become loose, or to allow unfiltered water



to pass. This Filter is peculiarly suited for the Bedroom and for Table use, affording a ready and simple means of obtaining at any time freshly-purified water.

PRICES.

O, 2s. 6d.; A, 4s.; B, 5s. 6d.
Engraved Vine Pattern—O, 3s. 6d.; A, 5s. 6d.; B, 7s. 6d.

POROUS TERRA COTTA FILTER, NO. 29.

Shape of this Filter as Fig. No. 24.

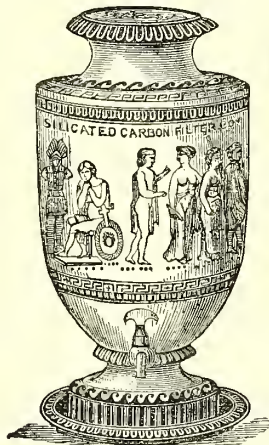
O, 2s. 6d.; A, 4s.; B, 5s. 6d.

SILICATED CARBON BLOCKS.

2 in., 1s. 6d.; 2½ in., 2s. 6d.; 2¾ in., 3s.; 3½ in., 4s.; 4¾ in., 5s. 6d. ea.
SPECIAL QUOTATIONS FOR QUANTITIES.

PRIZE FILTER,

This Filter is constructed in the form and colour of an Etruscan Vase, having inside it a movable pan, into which the Silicated Carbon filtering medium is fitted.



PATTERN NO. 23.

The exterior is made of Porous Ware, which acts with remarkable power as a Refrigerator, keeping the water deliciously cool. Capacity, about Two Gallons.

PRICE, WITH SILVER-PLATED TAP, £3 10s.

DINING-ROOM FILTER, No. 22.

MADE IN MARBLED CHINA.

Size A holds about two gallons; size B, five gallons.

PRICES.

A	35s.
B	80s.
A, with Ice Compartment (New Patent)	42s.
B, with Ice Compartment (New Patent)	100s.

The large size (B) is specially adapted for Hotels, Refreshment Rooms, Luncheon Bars, &c.

REFRIGERATOR FILTER, NO. 25.

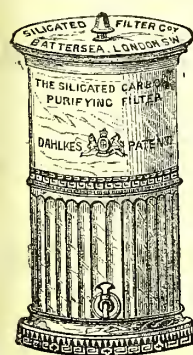
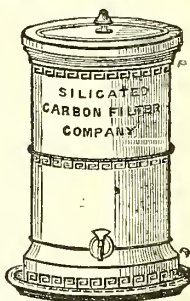
Made in Porous Terra-Cotta Ware,

Which acts with remarkable power as a cooler, and renders this Filter invaluable, especially in Tropical Climates,

AFFORDING A
COOL DRAUGHT OF PURE WATER.

Price, with Silver-plated Tap 31s. 6d.
Ditto, ditto, with Ice Compartment .. 42s. 0d.
Capacity, Two Gallons.

Specially adapted for Tropical Climates.



PORTABLE FILTER, No. 34, for Travellers at Hotels, Families at the Seaside, Pic-nics, &c. Made in Marbled Porcelain, with Cover. Can be placed in a jug, decanter, or other vessel. Price 7s. 6d. each.

SILICATED CARBON FILTER CO., CHURCH ROAD, BATTERSEA, LONDON.

HUNYADI JÁNOS APERIENT WATER.

CAUTION.

Circumstances which have come to the knowledge of Andreas Saxlehner, Buda Pest, Sole Proprietor of the Hunyadi János Spring compel him to warn the British Public against SPURIOUS IMITATIONS. To secure genuineness, purchasers should see that every bottle has on the LABEL the name of "THE APOLLINARIS COMPANY (LIMITED), London."

LAMPLOUGH'S EFFERVESCENT PYRETIC SALINE.



HAVE IT IN YOUR HOUSES AND TRAVELS, USING NO OTHER SALINE; it gives instant relief in Headaches, Sea or Bilious Sickness, and quickly cures the worst form of Eruptive or Skin Complaints. The various diseases arising from Constipation, the Liver, or Blood Impurities, Inoculation, the results of breathing air infected with Fevers, Measles, or Smallpox, are frequently prevented and certainly cured by its use.

The sale of these Saline Salts having greatly increased during the past few years, I beg most cordially to thank those who sell and recommend the same, and also to inform intending dealers that they will find Messrs. BARCLAY, EDWARDS, MAW, NEWBERRY, SANGER, SUTTON, and the Wholesale Houses generally, ready to supply their wants. This Advertisement is found useful in consequence of the trouble, cost, and inconvenience in the keeping and collection of numerous small accounts. *Note.*—The Name, Trade Mark, Labels, Wrappers, &c., are all Registered and Entered at Stationers' Hall. 113 HOLBORN HILL, LONDON, E.C.



SPECIAL NOTICE.—Medical Gentlemen having fever cases, and desirous of trying the Saline, can have a single bottle at wholesale prices by sending their cards.

Patent Effervescing Citrate of Magnesia Drops.

Patent Effervescing Lemon Kali Drops.

Patent Effervescing Lime Juice Drops.

Patent Effervescing Seidlitz Drops.

THE MOST DELICIOUS, COOLING, AND REFRESHING SWEETS IN THE WORLD.

Especially suitable for Hot Climates. An immense sale for them wherever introduced.

SAMPLES AND PRICES ON APPLICATION.

Manufactured only by

JAMES GREENWOOD, Wholesale Druggist, BACUP, LANCASHIRE, ENGLAND.

The XLCR DISINFECTING POWDER,

Guaranteed to contain 18 to 20 % of Carbolic Acid.

The XLCR

PASTE, ROLL, LIQUID, & TIN
BLACKING,

THE BEST IN THE TRADE.

The XLCR

WATERPROOF BLACKING.

The XLCR

JET BLACK, BLUE BLACK, &
COPYING INKS.

The XLCR

KID REVIVER & KID CREAM,
&c., &c.

**MORRIS & GRIFFIN, MANUFACTURING CHEMISTS, CERES WORKS,
WOLVERHAMPTON.**

ESTABLISHED 1821. WHOLESALE PRICE LIST UPON APPLICATION.

HORSES.—LIEUT. JAMES'S BLISTER

(Manufactured by R. J. JAMES, the Grandson of the Inventor).

his celebrated Blister is now offered to the Trade at the following reduced prices:—

1 oz. pots from	14/- per doz. to	12/6 per doz.	1 lb. pots from	£4 4 0 per doz. to	£4 0 0
2 " "	£1 5 6 "	£1 3 0 "	1 " "	7 16 0 "	7 10 0
4 " "	2 8 0 "	2 4 0 "			

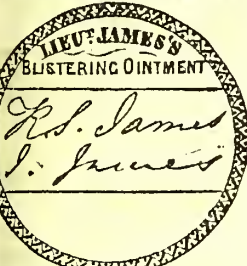


Observe the Trade Mark.—"A Horse's Head on the top of each Pot, and the signature, R. J. James."

Wholesale Agents, LUTLER & CRISPE, 4 Cheapside; NEWBERRY, 37 Newgate Street; MAW, SON & THOMPSON, 11 Ahlersgate Street; HAYES & CO. blin; GOULDING, Cors; FOGGITT, Thirk; and SANG & BARKER, Edinburgh. Agents for the Colonies required. Apply, with reference, to R. J. JAMES, 16 Ely Place, London, E.C.

JAMES v. JAMES.—LORD ROMILLY, the Master of the Rolls, on February 23, 1872, declared "that I had an equal right with other members of the Inventor's family possessing the receipt to make and sell this Blister."—R. J. JAMES.

ESTABLISHED 1833.
HORSES.—LIEUT. JAMES'S BLISTER.



CAUTION.
The annexed Label is at the top of every Pot of the ORIGINAL and only GENUINE BLISTER.

The Messrs. Barclay & Sons, 95 Farringdon Street, London, and Messrs. Raimes & Co., Edinburgh, Liverpool, and York, are now and have been Agents 45 years.

AGENTS:—Sutton & Co., 10 Bow Churchyard; W. Edwards & Co., 157 Queen Victoria Street; Newbery & Son, 37 Newgate Street; Evans, Lescher & Evans, Bartholomew Close; Burgoyne, Burbridges & Co., Coleman Street; Lynch & Co., 171A Aldersgate Street; W. Mather, Farringdon Road, London, and Manchester; Tidman & Son, Wilson Street; Sanger & Son, 150 Oxford Street; Millard & Sons, 40 Charterhouse Square; Perry & Soper, Shad Thames; A. A. Campbell, Leadenhall Street, London; Toolley, Sons & Co., 59 Market Street, Manchester; Apothecaries' Company, Virginia Street, Glasgow; Boileau & Co., Bride Street, Dublin; McMaster & Co., 121 & 122 Capel Street, Dublin; Hunt & Co., 17 Westland Row, Dublin; Clarke & McMullen, Victoria Street, Belfast; D. Galbraith, Londonderry. And by all Chemists, in Pots, 1/6, 2/3, and 5/.

COLONIAL AGENTS:—MELBOURNE and WELLINGTON: Felton, Grimwade & Co.; SYDNEY, BRISBANE, and LAUNCESTON: Elliott Bros. & Co.; LONDON and AUCKLAND: Kempthorne, Prosser & Co.; CALCUTTA: Smith, Harcourt & Co.

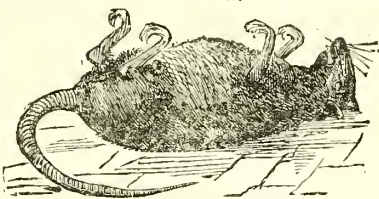
S. JAMES, 31 Years Sole Manufacturer, STANFORD, FARRINGTON, BERKS. Advertised in "Bell's Life" 45 years. Beware of a Spurious Imitation.

100 Rats destroyed for a Shilling by
BARBER'S PHOSPHOR PASTE.

WRAPPED NEATLY FOR THE COUNTER.

Handsome attractive Posters supplied; if conspicuously placed will command constant sale.

Kills Rats, Beetles, &c.
THE DEAD VERMIN DRY UP WITHOUT SMELL.



Guaranteed the best destroying Paste in the world.

3d., 6d., 1s., 2s. 6d., and 5s. Tins. Also

BARBER'S VERMIN KILLER.

SOLD THROUGHOUT THE WORLD.

Kills Mice upon the spot. In packets, 3d., 6d., and 1s.

Be not deceived with worthless imitations. Observe the Name !!

Testimonial from Her Majesty's Ratcatcher.

"Hampton, Middlesex, May 25th, 1870.—I have been more than forty years employed at Hampton Court Palace, the Royal Stables, and other buildings in and around the Royal Parks, for the destruction of rats, mice, and other vermin, and after trying all the rat poisons which I have heard of, I now use BARBER'S PHOSPHOR PASTE and VERMIN KILLER, with which alone I am able to keep these ancient palaces and national works free from vermin. (Signed) CHARLES SHONES."

WORKS. SALISBURY: ESTABLISHED 1848. Special Quotations to Shippers. Supplied by all the London Wholesale Houses

SPRATTS PATENT
MEAT "FIBRINE" DOG CAKES & POULTRY MEAL,
DOG MEDICINES AND DOG SOAP.

TO CHEMISTS AND DRUGGISTS.
The above Goods have an enormous Sale. For Terms, address—
"SPRATTS PATENT," Bermondsey, S.E., or order through your Wholesale House.

Wholesale Agents for the Soap and Dog Medicines:—Barclay & Sons; Sanger & Sons; Sutton & Co.; F. Newbery & Sons; Lynch & Co., London; Raimes & Co., Edinburgh, York, and Liverpool; Ravensdale Mill Co., Dublin; Woolley, Sons & Co., Manchester; Taylor, Gibson & Co., Newcastle-on-Tyne; Goodall, Backhouse & Co., Leeds; and of all Wholesale Houses.

enable all our friends thoroughly to test the efficiency of our specialities, we will, on receipt of post card, with name and address, send (carriage paid) a parcel of Free Counter Samples of

RESTORINE The Bowick Patent Botanic Flavourer, for Horses, Dairy Cows, Cattle, and Stock, and for imparting an aromatic flavour to Weathered Hay and Damaged Corn. Costs under one farthing per feed for Horse or Cow.	LACTINA The Bowick Patent Substitute for Milk for Calves and Young Animals. A one cwt. bag will make 200 gallons of Lactina, at a cost of under three-halfpence per gallon.
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THESE ARTICLES HAVE ONLY TO BE INTRODUCED TO SELL, FOR "ONCE USED ALWAYS USED."

SOLE MANUFACTURERS,

T. BOWICK & CO., BEDFORD, ENGLAND.

COOPER'S CARBOLIC SEED PROTECTOR

(NON-POISONOUS)

PREVENTS SMUT IN WHEAT,

AND THE

RAVAGES OF ROOKS, GAME, AND INSECTS.

This Powder dissolves in Cold Water and is easily used, and is suitable for every description of Seed. It prevents Birds and Slugs from eating the seed, but is perfectly harmless to Game and Poultry and to those using it. It does not contain any Poisonous ingredient. No other Dressing of any kind is required, and no other will be found to give such general satisfaction as this.

In Packets (with plain Directions), price 6d., sufficient for 4 Bushels of Seed.

COOPER'S WHEAT DRESSING

FOR

PREVENTING SMUT IN WHEAT,

Promoting the Germination of the Seed,

AND

PROTECTING IT FROM ALL INSECTS,

In Packets, price 6d., sufficient for 6 Bushels of Wheat.

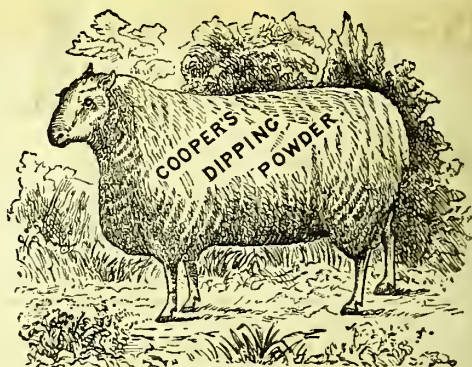
When a Carbolized dressing is not required this article is most strongly recommended.

Counter Bills, Posters, &c., with Agent's Name, may be had post free on application.

Terms and full particulars may be had of the Proprietor,

W. COOPER,

Chemical Works, Berkhamstead, Herts.



COOPER'S SHEEP DIPPING POWDER

Is soluble in Cold Water, and should be used in preference to any other Dip,

FOR TICKS, FLY, SCAB, AND FOR ALL OTHER SHEEP DIPPING PURPOSES.

This Dip has been in use upwards of 35 years, and has never been equalled by any other; it is of uniform strength does not stain the wool, and is equally good as a Summer or Winter Dip. It is especially recommended for Dipping Lambs and as a certain Cure for Scab.

In Packets to Retail at 1s. 4d. each, for 20 Sheep.

Counter Bills and Directions in English, Spanish, Dutch, &c., may be had free on application.

Terms and all particulars may be had of the Proprietor,

WILLIAM COOPER, M.R.C.V.S., Chemical Works
Berkhamstead, Herts.

HORSE, CATTLE, AND SHEEP MEDICINES.



By Special Warrant,
Dated 27th December, 1865.

BY ROYAL APPOINTMENT.

DAY, SON & HEWITT,

INVENTORS AND SOLE PROPRIETORS OF THE

"ORIGINAL" STOCK BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep, and Lambs.

Patronised for over 40 years by Royalty, and the principal Stock Breeders, Horse Proprietors, and Agriculturists of the British Empire.

The No. 2 MEDICINE CHEST contains the following matchless remedies:—

- "CHEMICAL EXTRACT," for all External Injuries, and Ewes Lambing.
- "GASEOUS FLUID," for Colic, Scour, or Diarrhoea, and Debility.
- "RED DRENCH," for Cleansing Cows and Ewes, and for Inflammation.
- "RED PASTE BALLS," for Mares after Foaling, and Conditioning Horses.
- "BRONCHOLINE," for Husk or Hoose in Sheep, Lambs, and Calves.
- "GASEODYNE," for Heaving and Paining, "CARMINATIVE CHALK," &c.

Price of Chest, with Guide to Farriery, £2 16s. 6d. No. 1 Complete Medicine Chest, in Polished Case, £6 6s.

Horsekeeper's Chest, No. 4, £2 17s. 6d.

CARRIAGE PAID TO ALL PARTS.

Admirably adapted for all ordinary ailments among Stock, and each preparation can be had separately. Full and easy directions enclosed. Awarded "Certificate of Merit" by the National Agricultural Society of Victoria, Australia, Spring Exhibition, 1871; President's Medal, Spalding Show, July, 1872; Silver Medal, Manchester and Salford Show, November, 1874; Silver Medal, Preston Agricultural Show, June, 1875; Silver Medal, Northamptonshire Agricultural Society, Stamford Show, September, 1875; Silver Medal, Cheshire Agricultural Society, Crewe Show, September, 1875; Special Prize, National Agricultural Society of Victoria, Australia, November, 1875; Medal, Cheshire Agricultural Society, Cheshire Show, 1876; Silver Medal, South African Exhibition, Cape Town, 1877; Silver Medal, Northumberland Agricultural Society, Newcastle-on-Tyne Show, August, 1877; Silver Medal, Knutsford Show, July, 1878; Medal, North Berwick Show, July, 1878; Medal, Dairy Show, London, October, 1878; Silver Medal, Derby, September, 1879; and Silver Medal, Wellingborough, September, 1879.

CAUTION.—Beware of low-priced Imitations, and see that the name of DAY, SON & HEWITT is on all Bottles and Packets.

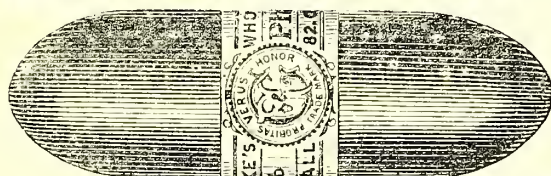
Prepared only by **DAY, SON & HEWITT, 22 DORSET STREET, BAKER STREET, LONDON, W.**

And sold by Messrs. Burgoyne, Burhidges & Co., Barclay & Sons, W. Edwards, Newbery & Sons, Sanger & Sons, and all Wholesale Druggists, in London; Hood & Co., Melbourne; Kempthorne, Prosser & Co., Dunedin and Auckland; Fairthorne & Co., Launceston.

DRUGS, CHEMICALS, PHARMACEUTICAL PREPARATIONS.**GABRIEL & TROKE,**

Wholesale and Export Druggists and Manufacturing Chemists,
82 CITY ROAD, LONDON.

**GABRIEL & TROKE'S
REGISTERED CAPSULED HORSE BALLS,**



Manufactured solely by GABRIEL & TROKE,
WHOLESALE DRUGGISTS, 82 CITY ROAD,
LONDON.

MANUFACTURERS OF ALL VETERINARY PREPARATIONS, EVERY KIND OF
VETERINARY INSTRUMENTS AND SUNDRIES.

superior advantages of these Balls are obvious. The mass is confined in an hermetically sealed gelatinous Capsule, perfectly harmless, and immediately dissolved in the stomach. The Capsule will not only prevent the Ball from getting dry and hard, but will preserve its purity and power for any considerable time, and ensure the effectiveness of the medicine—especially when such drugs as Camphor, Ammonia, or Essential Oils are prescribed. These Capsuled Balls are most convenient and safe and well adapted for export, keeping good in any climate. They are put up in Boxes of 1 dozen each. Capsuled Balls of the most approved formula on hand, and private recipes faithfully and accurately dispensed. Shipping orders promptly and carefully executed, and at lowest market prices. Price Lists of a very extensive character in the most handy referable style on application.

SAMPLES AND SPECIAL QUOTATIONS FOR LARGE BUYERS.

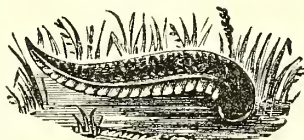
CATS! RATS! RATS!

How to Destroy and Entice them, and take them Alive,
rendering them docile and playful as kittens.

The Recipe and Testimonials, also Instructions, 31 stamps.

VERITY, CHEMIST, BRISTOL.

HAMBRO SPECKLED.



TRADE MARK
REGISTERED.

All Orders by Post receive immediate attention.

LEECHES!

Warranted Healthy, Wholesale
and for Exportation, Direct
from Marshes.

FITCH & NOTTINGHAM,
Leech Breeders,

MARSEILLES, & 55 PENTONVILLE
ROAD, LONDON, N.

THORLEY'S FOOD FOR CATTLE.

SOLE ADDRESS—

Joseph Thorley, Thornhill Bridge, King's Cross,
LONDON, N.

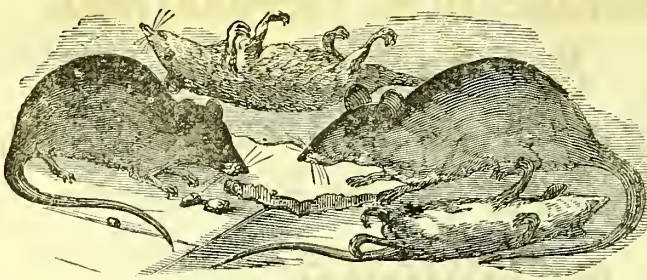
NOTICE TO CHEMISTS.

THORLEY'S ILLUSTRATED FARMER'S ALMANACK for 1881

Will be ready on October 1st, and during OCTOBER, NOVEMBER, and DECEMBER, 1880,
10 Copies will be enclosed GRATIS with every cwt. of Food ordered.

THORLEY'S FOOD FOR REARING CALVES & YOUNG STOCK.

BATTLE'S VERMIN KILLER.



Mice eat it readily, and Die on the spot.

Has an immense Sale, and wherever introduced never fails to give satisfaction.—Mice appear attracted to it as by magic, eat it readily, tumble over and die on the spot. Rats usually die in their runs.—Parties troubled with Vermin may be cleared at once, either from Stacks, Houses, or Ships.

TESTIMONIALS.—*Thousands might be published* From Mr. THOMAS COLTON, Agent for Selby.—A friend of mine purchased a Packet of your VERMIN KILLER last night, doubting its efficacy; to-day he called in to say that he had found fifteen dead mice, and had on used part of a packet.—From Mr. EDWARD STURDY, Flemington Mills. I duly received by post the Packet of your VERMIN KILLER, and found as represented in your advertisement. It speedily destroyed all the mice my granary. I enclose 2s. for two more Packets.—Leeds, November 21 1857.—I have tried BATTLE'S VERMIN KILLER, and have found it most effectual in clearing my premises of LARGE QUANTITIES OF RATS. THOMAS S. CROSLAND.—Mr. Stead.

Sold in Packets, 3d., 6d., and 1s. each.

SOLE PROPRIETOR:

Mr. J. R. BATTLE, Chemist, Lincoln, England.

No Chemist or Storekeeper should be without a supply.

MYOCOM FLY GUM,

For Freeing Rooms, Nurseries, Hospital Wards, Vineries, Fruit Houses, &c., of the PEST OF FLIES.

It simply requires winding on a piece of string, and suspending from the ceiling. It will attract and catch all the flies in the apartment. *Pun* attributes its invention to "the experience of a phoneticist in seclusion," and its utility is so great, and its favour so boundless, that it may equally well be found either in a Queen's palace or a prison cell. The Hon. Sidney Herbert, M.P., writes:—"The result of using your 'Myocom' Fly Gum has been most satisfactory one. Send me two more boxes immediately."

Sold by all Chemists in 1s. tins, or a sample tin can be had post free from the Sole Wholesale and Registered Proprietors,

T. CHRISTY & CO., 155 FENCHURCH STREET, E.C.
LIBERAL TRADE TERMS.

100 PER CENT. PROFIT.

SIDDALL'S CELEBRATED BEETLE POWDER!!

3d. size, 18s. per gross

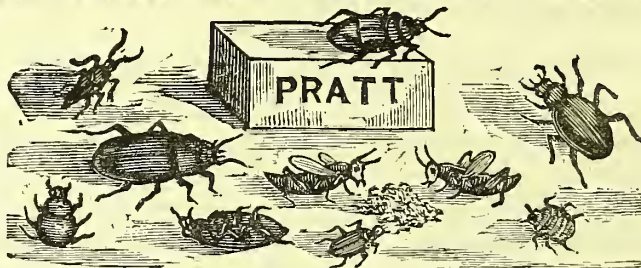
Carriage Paid.

Death to Beetles!!

Death to Cockroaches!!

Death to Crickets!!

3d., 6d., and 1s. packets.



1,000 Handbills with

each parcel.

Death to Black Clocks!

Death to Bugs!!

Death to Fleas!!

3d., 6d., and 1s. packet

Has been established for more than Thirty Years, and is an excellent and most satisfactory Insecticide for the destruction of household pests such as Black Clocks, Beetles, Crickets, Fleas, &c.

Sole Proprietor—HENRY J. PRATT (late SIDDALL), Pharmaceutical Chemist, YORK.

THE CONDY'S FLUID CO.,

7 Falcon Street, London.

BEWARE OF MEAN AND ACTIONABLY FRAUDULENT IMITATIONS OF OUR FIRM AND GENUINE PRIZE MEDAL LABELS, WITH FICTITIOUS ADDRESSES.

Important Notice to the Trade.

HELLIAR'S FLY TICK & LEAR POWDER,

For Dressing Sheep and Lambs.

ESTABLISHED 1857.

May be sold without Registration, as it contains no poison prohibited by Act. Sold in Tins at 1s. for 20, 2s. for 50, and 3s. 6d. for 100 Sheep, with full instructions for use.

IMPORTANT TESTIMONIAL from W. F. B*NNETT, Esq., Chilmark, Salisbury.—"Your Fly Powder has been used on my flock some years, and I have always found it most efficacious in keeping off the fly and killing ticks; in fact, I have not dipped my lambs for the last two years.—Aug. 30, 1875."

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STILL FURTHER REDUCED PRICES.

CONDY'S FLUID RED ... 1/ size, 4/ per doz. net

" " " 2/ " 8/ "

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All Wholesale Houses supply our genuine articles with Prize Medal Labels at our Reduced Prices.

Order R. CONDY & CO.'S Articles.

And insist on being charged our REDUCED Prices.

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See pages 33, 34.

IMPORTANT NOTICE TO CHEMISTS.

ving to the unscrupulous methods and false assertions employed by an irrespon-
sible vendor of India Rubber Porous Plasters, we feel constrained to state that our

INDIA RUBBER POROUS STRENGTHENING PLASTERS

are guaranteed not to contain a single atom of Lead or any other ingredient calcu-
lated to injure the consumer; on the contrary, **THEIR COMPOSITION IS PURE**
DETECTABLE; in quality and general appearance they are unsurpassed by any
other, and can be obtained by the gross at £1 16s., less 10 per cent.

THE "LANCET."

"Messrs. SEABURY & JOHNSON have produced a list of Plasters, all made with India Rubber as a basis, which are elegant, stick well, are
flexible, easily adapting themselves to the folds of the skin, occasion no inconvenience to the patient, and have the appearance of being made with faith-
fulness to the British Pharmacopoeia. One Plaster worthy of especial praise is the Salicylated Isinglass; it is flexible, and on being slightly wetted
is a good adhesive plaster for surgical purposes."

THE "MEDICAL PRESS AND CIRCULAR."

"Among more recent and valuable Pharmaceutical improvements we would draw the attention of the reader to an elegant and convenient lot of
Plasters prepared by SEABURY & JOHNSON. We have recently tried some of them, and find them to be, severally, very neat, clean, and efficacious
varieties. India Rubber has been used as a base in the preparation of the Plasters, by which means the medicinal substances used are protected.
In regard to their therapeutical efficacy, and the style in which they are got up, we can speak from experience. Among the other Plasters which have
been in our great satisfaction, we may mention those in which *Belladonna* and the *Spanish Fly* are, respectively, the chief ingredients."

"LONDON MEDICAL RECORD."

"Messrs. SEABURY & JOHNSON, of 28 Red Lion Square, London, have forwarded to us a series of Plasters made in a style which deserves warm
commendation. All of them are of the best make that we have yet seen, and, taken as a series, constitute a considerable improvement in the manufacture of
original Plasters, of which surgeons and physicians will, on inspection, easily realise the value. Their Salicylated Isinglass Plaster, spread on strong
perforated cotton cloth, and applied by wetting, is the best surgical adhesive plaster which we have seen. The plaster itself is made of pure gelatine, and
is antiseptic in character; it adheres firmly and closely on being wetted with a sponge; it does not spoil in any climate. It is obviously from its
structure calculated to last much longer than the ordinary adhesive plaster. The Mustard Plaster, the Capsicum Plaster, India Rubber Blister
Plaster, and Pitch Plasters are all equally deserving of commendation."

The "British Medical Journal," "Medical Times and Gazette," "Chemist and Druggist," and many of the Provincial Medical
Journals have noticed our productions as worthy of special commendation. Our improved Pharmacopoeia and Surgical Plasters in India Rubber
combination overcome all objections found in the use of plasters, and present the following advantages and qualities, which will be appreciated by every
Physician, Surgeon, and Chemist:—

Perfect Cleanliness and Reasonable Price.

Perfect Pliability in any temperature.

Adhesion without Heat or Moisture.

Combined India Rubber Prevents Decomposition.

Being Porous they do not slide or move, thereby en-
suring increased local action.

They remain serviceable longer than other plasters.

India Rubber Preserves the incorporated Extract or Drug.

Our Mustard Plasters are spread on Cotton Cloth instead of Paper.

Our Isinglass, Court, Corn, and Bunion Plasters are all spread with Chemically-pure Fish Gelatine incorporated with
Lactic Acid. Fish Isinglass treated by our method of purification ensures an article that adheres quickly by the application of the slightest moisture;
in addition to its more susceptible and greater adhesive properties it is rendered antiseptic.

Every Pharmacopoeia Plaster guaranteed to be of Official Strength. We also manufacture in addition to our list of India Rubber Plasters, in the
most approved form and improved quality, Mustard, Silk, Isinglass, Medicinal, Corn, Bunion, and Court Plasters in great variety.

If our India Rubber Porous Strengthening Plasters possess any superiority over similar articles it is owing to an increased local action. All Porous
Plasters are packed two dozen in a box, and are fully warranted to give perfect satisfaction. We quote a few of the more prominent kinds, subject to
10 per cent. discount monthly.

Size, 7½ x 5.	Per doz.	Per gross.		
India Rubber Porous Strengthening Plasters	4 0	£1 16 0	Surgeons' Rubber Adhesive Plaster, 7 in. x 1 yd. .. Per doz. Rolls	£0 17 0
" Arnica	4 0	2 4 0	Mustard Plasters (10 in a box), on Cotton Cloth	Per doz. 0 10 0
" Aconite	5 0	2 17 0	" " (6 in a package)	" 0 6 0
" Belladonna (B.P.)	4 6	2 11 0	" " (3 in a package)	" 0 3 0
" Capsicum	5 0	2 17 0	" " yard Rolls, 6 x 36	" 0 10 0
" Opium (B.P.)	7 0	3 16 0	" " ½-yard Rolls, 6 x 18	" 0 6 0
" Poor Man's	4 0	2 4 0	Salicylated Isinglass Plaster, 5-yard Rolls	Per Roll 0 5 0
" Burgundy Pitch (B.P.) Plasters	4 0	2 4 0	" " "	0 1 3
" Warming (B.P.)	5 0	2 17 0	India Rubber Porous Strengthening Plasters, in 5 yard Rolls, 5 in.	Per Roll 0 6 3
" Belladonna Plaster (B.P.), 7 in. x 1 yd. .. Per doz.	1 7 6	1 7 6	Ditto ditto in yard Rolls, ditto ditto	Per doz. 0 17 0
India Rubber Blister Plaster (B.P.), 7 in. x 1 yd. .. Per doz. Rolls	1 7 6	1 7 6	India Rubber Porous Belladonna Plasters, in 5 yard Rolls 5 in. wide	Per Roll 0 8 6
India Rubber Capsicum Plaster	"	"		

BENSON'S CAPSICINE POROUS PLASTER,

the most active external remedy known, is a great improvement on the slow action of the ordinary Porous Strengthening Plaster, and was specially
recommended by American Medical Jurors, as an article of genuine merit. Per dozen, 8s. 6d. 10 per cent. discount.
Goods can be obtained from all Wholesale Druggists, Patent Medicine Dealers, and Druggists' Sundriesmen. Complete Price Currents of our Plasters
sent to any address on application. Inquiries and correspondence promptly answered.

SEABURY & JOHNSON, 1 and 2 Australian Avenue, E.C.

ENO'S "FRUIT SALT,"

"FRUIT SALINE," OR "FRUIT POWDER."

ENO v. STEPHENS IN THE COURT OF CHANCERY.

Shorthand Writer's Notes of Vice-Chancellor Bacon's Summing-up and Judgment.

Sir HENRY JACKSON, Q.C., on proceeding to sum up in detail on the evidence and arguments in the case, was stopped by the VICE-CHANCELLOR in the following words:—

Sir Henry Jackson, I do not think I ought to trouble you. The case has been discussed at very great length. I confess somewhat to my astonishment when Mr. Hemming declined to adopt the evidence as it was before the Court of Appeal, and put the Plaintiff to prove by the same evidence the same facts which had been proved before, I was under the impression that he meant to call witnesses on his own behalf. If that had been, as that probably may have been his intention at that time, there would have been a reason perhaps for repeating over again at very great length and considerable expense, of course to somebody, the evidence upon which the Court of Appeal had acted—I say nothing about what was done in this Court, but the Court of Appeal had acted upon that evidence. The case, however, concludes, and no evidence whatever is adduced by the Defendant—not even his own statement in his Defence is verified by his own affidavit. What is to be done with a case like that? The whole principle of the case was decided upon the first occasion. The Court of Appeal thought it right to adopt that restriction which I had thought it right to adopt, not to extend the Injunction further than the then present exigency of the occasion required. Not one word of the judgment of the Court of Appeal shows that there should be any restriction, or that there should be any restriction when the case came on for hearing. Now it comes on for hearing upon precisely the same evidence, and the evidence, among other things, is, that in the circular which accompanies this bottle of Salt, the words to which the Plaintiff particularly objects are repeated by the Defendant, and repeated by means of copying the Plaintiff's circular. Mr. Giffard says nobody buying the bottle would think of looking at the circular, for it is enclosed in the wrapper, and not even visible to the eye. But the case is one in which the Plaintiff complains of the general similarity and the general appearance of the names which are used by the Defendant, and if a purchaser entertained any doubt, if he was puzzled for a moment between "Vinous" or "Vinous," and Eno's—the sounds being, in one mode of pronunciation, very much alike—if he opened the wrapper and read the circular he would say, My doubts are removed; this is what I want—I want Fruit Saline, and here it is—the circular says it is "Fruit Saline."

The Defendant in his statement at the end of the fourth paragraph says he has not "at any time since the month of August, 1877, used the words Fruit Saline, or Fruit Powder, in any label or advertisement or otherwise in connection with the sale of the said preparation." Under the old system if a defendant had put in his answer, as he must, upon oath, he might perhaps have read that passage and said "the Plaintiff's allegation in that respect is denied." The Defence is not put in on oath and the Defendant declines to pledge his oath to that fact. But it does not rest there; for the evidence is clear and conclusive that after the month of August, 1877, when the Plaintiff, not without some degree of forbearance, as it seems to me, was content to take the Defendant's word that he would not repeat that offence which the Plaintiff complained was doing him that injury which he thought he was suffering, he did, in spite of his promise, repeat that which the Plaintiff called an offence and believed to be an injury to him. The case comes to a hearing, the Defendant insists upon the Plaintiff proving his case. At the Defendant's instance the Plaintiff has proved his case, and, among other things, has proved the utter falsehood of that Defence which is set up in the paragraph which I have read. The matter, therefore, is wholly without doubt, without defence, without excuse of any kind that I can perceive, because, when I am told that I must consider what the intention of the parties was, and when I am told, moreover, that there is no evidence that anybody has been deceived, and the Defendant in his defence says nobody has been deceived, his intention to deceive is not contradicted. That is what the Plaintiff imputes to him; and that is what, I think, the Plaintiff establishes not only from the simplicity of the sign, but from the fact that, when the complaint was first made in August, 1877, they were words which the Defendant admitted he had no right to use. For what reason? Because they were calculated to deceive—calculated to represent the Defendant's goods as those which the Plaintiff was selling under the title which he had adopted.

Upon the general case, therefore, in my opinion, the matter is beyond all doubt. It is proved that the use of the word "Fruit" with other substantives, "Saline" and "Salt," and so on, has been made by the Defendant since the time when he promised not to make it, when he admitted it was unlawful, and which I have no doubt whatever was wholly unlawful. It is said that he endeavoured to keep his promise by pasting something over the word "Fruit." Well, if that meant anything it is a plain admission of the justice of the Plaintiff's claim in that respect. But how can I consider that that is keeping his promise? Whether that pasting over was to be effectual or not would depend upon the consistency of the paste or glue, or perhaps the humidity of the atmosphere or any other accident. That there

was no intention to perform his promise, I am satisfied of, and that there has been no performance of his promise I think is clear.

Upon the general case, therefore, I think the Plaintiff is entitled not only to the Injunction in the terms of the Interlocutory Order, but upon those more extensive terms which the Plaintiff asks, by his claim, should be applied to the Defendant's infringement of his rights.

Then there is another subject which is so intimately connected with that that I desired to hear them both together, and I am very glad I did because, as Mr. Giffard has just told me, that is the main question in dispute between the parties. For the Injunction the Defendant does not seem to care much, though he has violated it, in my opinion, plainly; but he says the question is whether there is a title to register this Trade Mark for which the Defendant proposes to apply. Now that depends upon the words of the Act of Parliament which have been used, the more important of which are "so resembling as to be calculated to deceive." That is a question not to be decided by eyesight; I am invited to lay these two devices side by side, and, since they are not identical and since there are great differences in their external appearance, to decide that they are not calculated to deceive. To that word DECEIVE I have no right to criticise or quarrel with; it is used in the Act of Parliament, and if I were to give one sense to it, it is plainly in my judgment calculated by the Defendant meant and intended by him, to deceive any person who is not vigilant enough either in eye or in ear to detect at once the difference between Vinous and Eno's, and the difference between Fruit Salt and any other salt. Eno's title being plainly upon his Trade Mark, Eno's Fruit Salt.

It is not, as I have said, by sight; it is not by the use of a microscope it is by any other means of detecting more or less of resemblance that you can decide a question which the statute contemplates by using the word that I have referred to. But it is whether the Registrar, whose office it is to register, is satisfied before he performs his function by registering the mark, that the applicant's mark does so resemble as to be calculated to deceive. Can any living man doubt that it is not only calculated—that it intended—but that it is also calculated—that is to say, meant and contrived for the purpose of deceiving—else why does he do it? The world is wide as has been said in the Judgment referred to, and all things in the animate and inanimate world are open to the Defendant to make a device which shall distinguish his goods from those of any other person. But the Plaintiff having appropriated to himself, and enjoyed for years a device in which the principal characteristic consists of a bunch of grapes, with a Latin motto, and the specific description which relates to Eno's Fruit Salt, the Defendant proposes to register a design in which the principal device is the stem of a vine with a bunch of grapes and some leaves, and a Latin motto around it, and it is to be called "Vinous Salt." If there was nothing in the case but the contrast of these two things, it might, perhaps, to some persons who trusted only to their eyes, be said there was no resemblance between them, or no sufficient resemblance; but the Registrar is bound to take the whole case into his consideration; he is not to be misled by any mere similarity or dissimilarity. That is not the way that the Court of Appeal, in the latest case that was before it—the Sheffield case—dealt with the question. The Defendant there had as good a right as anybody in the world could have to stamp his own crest or coat of arms, or anything else, upon his commodities. Nobody could dispute it, and nobody, putting the two things together, could say they were so much alike as to deceive. Mr. Hemming insisted that the stamping, being made on a hard metal, was likely to be blurred, and the persons to be deceived. I have a very clear recollection of that case, and I say it would be impossible for a man with eyes, or with one eye, in his head to mistake the device in that case for the device which the Plaintiff desired there to use.

Mr. HEMMING:—Your Lordship will pardon me, I was only quoting the Master of the Rolls.

The VICE-CHANCELLOR:—I know, and have also clearly in my mind what the Master of the Rolls said and what he did not only in the "Dog and Fiddler Pot" case, but in that case. The Master of the Rolls' judgment takes a wide and comprehensive view of the subject. He refers to the statute only for the purpose of verifying and corroborating that view, but what he said was "an honest man who wants to mark his goods never thinks of taking the device partly or wholly which some other tradesman is employing for the purpose of marking his goods," and that I take to be the true principle of the case.

And, taking all these things together, the Plaintiff's evidence in the first place, the total absence of evidence or statement on the part of the Defendant, excepting the ingenious and elaborate statements which Counsel have addressed to me, there being no statement whatever by him at any time except that he admitted he had done wrong in using the word "Fruit," I am asked to say that there is no such resemblance between those two devices as, between those two men, are calculated to mislead in reference to the commodities tendered in the shape in which they are sent into the world. I think I should be wasting time if I observed further upon it. It is to me clearly manifest not only that there is sufficient resemblance to answer the strictest words of the statute, but that there is a resemblance which has been carefully and intentionally calculated to deceive. And as the Defendant will not pledge his oath to a contrary intention I cannot come to a contrary conclusion than that the injunction ought to go in the terms in which the bill prays for it, extending it therefore beyond the Injunctions granted on the Interlocutory Order and upon the motion, to say that the Defendant is not entitled to register the device of a bunch of a vine with a bunch of grapes upon it, and a Latin motto on it and the name "Vinous Salt." There is an end of it therefore.

Sir HENRY JACKSON:—Well, my Lord, of course I must have the costs. The VICE-CHANCELLOR:—You must have the costs of both.

Other attempted infringements of J. C. ENO'S rights have been stopped by legal intervention, and J. C. ENO publishes the above Judgment in extenso in the hope of deterring all further attempts at similar piracy. He is determined, however, to take legal proceedings without further notice against any one who may hereafter seek to infringe his rights.